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INTEGRATED LOGISTICS SUPPORT (ILS) CONTRACTUAL PROVISIONS GUIDEBOOK

31 October 1975

Prepared for
AIR FORCE LOGISTICS COMMAND
Wright-Patterson Air Force Base
Dayton, Ohio 45433
under Contract F09603-73-A-4392-0012

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by

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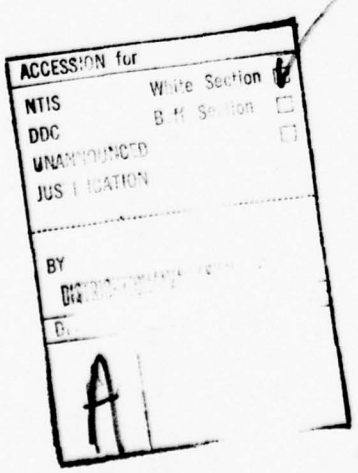
READ YOUR CONTRACT

BEFORE

IT'S SIGNED!

KEY POINTS FOR SUCCESSFUL CONTRACT DEVELOPMENT

- **Review DIDs for applicability and currency!**
- **Avoid use of "boilerplate" as much as possible! Tailor to suit specific program needs!**
- **Read your contract before it's signed!**
- **Use your functional logistics specialists and technicians during contract development!**



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SECTION ONE

INTRODUCTION

BACKGROUND

The ownership of defense systems involves the expenditure of billions of tax dollars for system development, acquisition, operation, and support. A major portion of these costs must ultimately be earmarked for the system's support, or system logistics. Because of the constant pressure to reduce defense budgets, the percentage of defense dollars in the federal tax base is shrinking. At the same time, increased complexity and sophistication, together with inflation, make new defense systems considerably more costly than their predecessors. Caught between the shrinking percentage of the federal tax base and increasing costs, the Department of Defense is now more than ever faced with extreme difficulty in selecting systems for future acquisition. Major factors in the selection process include not only whether the system can meet its mission within the acquisition cost and schedule, but also whether it can be supported over its life cycle with severely limited funding.

Of prime importance in reducing life-cycle costs is the reduction of the support, or logistics, costs. In order to accomplish this end, it is necessary to ensure that the proper support features are included in the system design. The desirable logistic characteristics must be integrated with one another and with performance and cost characteristics to produce a cost-effective system capable of accomplishing its intended mission. Thus the acquisition of a cost-effective system involves the procurement of logistics integration, a commodity commonly referred to as integrated logistics support (ILS).

The key to procuring integrated logistics support is the quality of the content and format of the acquisition contracts, particularly the ILS section of the contract statement of work (SOW). A variety of approaches have been used in constructing SOWs over the years. Some have been successful, but many others have not. The difficulty in preparing the ILS section for SOWs lies in the fact that numerous ILS considerations must be addressed as applicable in a time frame that is usually very short and the resulting effort is rushed. It is not surprising that at times key ILS contractual provisions in SOWs have been left out entirely.

There is a need for a set of guidelines that can be utilized by those personnel who must draft the ILS portion of the statement of work, in particular for full-scale development and production contracts. *It is the purpose of this guidebook, therefore, to present guidelines for those ILS considerations which must be addressed in system full-scale development and production acquisition contracts.*

GUIDEBOOK STRUCTURE

The guidebook is structured to assist the reader in drafting the ILS section of his contract. It consists of a checklist of ILS contractual provisions, a set of sample ILS contractual statements that can be employed "as is" in the contract or tailored to the specific system being acquired, and a set of "lessons to be learned" to be applied to the ILS portion of the contract. The majority of the ILS tasks and items in the checklist are those normally contained in the contract SOW. A few items, such as the logistics support cost commitment (LSCC), the reliability-improvement warranty (RIW), etc., are options that normally are contained in the Special Provisions section (Section J) of the contract. These are so noted in the checklist. The checklist is further structured for those tasks and items which would normally be contained in full-scale development (FSD) or production-contract SOWs. (There is a current tendency in contracting to award joint FSD/initial-production contracts. The reader should note, however, that the tasks accomplished during this FSD phase are more oriented toward design, whereas those accomplished during the production phase are more concerned with updating and testing.) The statements are applicable to both major defense systems and less-than-major systems since, regardless of the cost, each new system generally has the same ILS contractual elements to be considered in the acquisition process.

Before the reader starts drafting the ILS section of his contract, it is important for him to review AFSCP 800-21, A Guide for Program Managers: Implementing Integrated Logistic Support, and his local product division's SOW preparation guide, e.g., ESDP 800-4, which is utilized at the Electronic Systems Division (ESD). Such documents offer excellent guidance for the peculiarities that must be reflected in contracts awarded by a particular product division. It is also important to review the Review References and the Data Item Descriptions (DIDs) referred to in the checklist to ensure that they are current and still relevant to the subject at hand. It is recommended that the AFSC Product Division Logistics Staff, the prime Air Logistics Center (ALC) designated for the system, and the appropriate Technology Repair Centers (TRCs) be consulted for guidance in structuring the ILS portion of the contract.

The ILS contractual provisions checklist and sample contractual statements are generally what could be expected to be required for a new system acquisition. However, each system acquisition is unique; therefore, *it is mandatory that each of the checklist tasks and items and the corresponding sample contractual statements be tailored to the particular program's needs.*

REVISIONS

The methodology presented in this guidebook is not offered as the only approach to developing ILS contractual provisions. However, it does represent the collective experience of many Air Force personnel involved in new-system acquisitions. The book is intended to be dynamic; it will be revised from time to time. If the reader has "a better idea", he is urged to send his comment(s) through his command channels to AFLC/AQM or AFSC/SDD to be considered for inclusion in the guidebook. He is urged particularly to comment on the relevance and applicability of the references and data-item descriptions contained herein.

SECTION TWO

LESSONS TO BE LEARNED

INTRODUCTION

This section presents "lessons to be learned", or the fundamental points to be considered before the statement of work or the Special Provisions section of the contract is developed. These "lessons to be learned" were obtained from interviews with experienced government logistics personnel; they constitute areas that merit particular attention. Although some of the lessons are self-evident, "common sense" matters, a number of persons interviewed recommended that they be included as important reminders.

The "lessons to be learned" correspond with the breakdown of the various ILS elements contained in the checklist:

- ILS Management
- ILS Analyses and Procedures
- Initial Spares/Repair Parts Provisioning
- Support Equipment
- Computer Resources in Systems
- Packaging/Handling/Storage/Transportability/Transportation
- Maintenance
- Reliability and Maintainability
- General Lessons Learned

ILS MANAGEMENT

1. Program management directives (PMDs) may not contain sufficient guidance for PMRT. In addition, the maintenance concept may not be adequately delineated in the PMD or the ROC. Prior to writing the statement of work, attempt to ensure that sufficient guidance for PMRT and the maintenance concept is made available before contract development. If possible, include the PMRT and the maintenance concept in the PMD, the ROC, or both.

2. Ensure that the logistics test requirements for DT&E and OT&E are properly incorporated in the contract. The ILSO should scan the test portion of the contract for omissions or redundant test efforts in the logistics area.

3. Ensure that the contract directs the contractor to conduct logistics tests in an actual operating environment. Do not let the contractor attempt to use an artificial test environment and then project actual environmental effects by analysis. In most cases, it cannot be done. For example, if a test is conducted in which the actual environmental temperature is not simulated, demand that the contractor show the effects of temperature for the item by actual test, if feasible, rather than by analysis.

4. When preparing a contract, be sure to consider establishing a requirement for uniform data collection to commence with DT&E. Ensure that the contract requires the contractor's compliance and that the contractor provides equipment/classification codes and work unit codes as applicable.

5. Technical manual funding is too often deleted because of a lack of program funds. When this happens, the user discovers that the system is unusable because it cannot be operated or maintained without proper technical manuals geared to the user's requirements. Before a decision to use commercial manuals is irrevocable, contact the program system manager (SM) or item manager (IM) and the cognizant technology repair center (TRC) to determine the usability and impact of using commercial manuals and, if they agree, direct the contractor to conduct an impact study that confirms or refutes that a saving can be realized by not requiring military technical orders. Assure that the contractor-furnished costing data are realistic and accurate.

6. Technical manual schedules initially established on contract are frequently not realistic. In general, there is no slippage of technical manual milestones when other program milestones slip, such as CDR, PCA, etc., or when a contractor

experiences engineering technical problems. When an acquisition strategy exists, the impact on the technical manual schedule for preparation should be determined relative to other support areas and such facts should be presented to higher authority to grant a schedule change. Provisions for a schedule slip under these circumstances should be included in the contract.

7. Technical manual program directives issued by the SPO may become ineffective because of a lack of timely update of changes issued as a result of program alterations. Criteria and procedures should be established to update and amend these program directives and, when possible, allow the rescheduling of any required actions to afford sufficient time for their accomplishment. During contract preparation, consideration should be given to funding provisions that permit the contractor to take appropriate, timely action.

8. Ensure that the contract directs the contractor to provide and update a complete and comprehensive technical manual Validation Plan. Ensure that this plan is fully coordinated and kept current to reflect the extent of effort and responsibilities of agencies concerned with the validation. Ensure that the SOW and the contract contain a requirement for TO/TM verification. This effort will be chaired by the government, with contractor participation, and will be conducted in accordance with TO-00-5-1 and the approved TO/TM verification plan preferred by the government.

9. The SOW must be clear in directing the contractor to develop procedures to demonstrate his ability to meet ILS milestones contained in the system specification with production equipment. The contractor must define (a) the type of demonstration required, (b) quantifiable and easily measured and validated pass/fail criteria, and (c) options available if the production equipment does not meet the criteria (that is, redesign or modification, retesting, alteration of supply procedures, etc.).

10. State in the contract how LSC will be applied and utilized at each stage in the acquisition cycle. For example, in the early stages of FSD, LSC may be used for comparison purposes in considering alternatives. In the later stages of development, where the system matures, LSC should be used to develop actual projections of support cost over deployment life.

11. If LSC is going to be applied in the acquisition process, ensure that provisions are incorporated in the contract for its measurement later during DT&E. The contract should also specify audit trails for LSC.

12. Assure that the LSC data base is completely defined in the contract.

13. The LSC model, whether developed by the government or by the contractor, must have the capability to estimate R growth. For example, the system or the subsystem will have growth curves that represent the R growth from infancy to mature values. Since this growth curve can only be estimated (and updated as its shape becomes known), the LSC model should have the capability of integrating and utilizing the growth curve in its analysis techniques.

14. The contractor should not be directed nor be permitted to design and develop the CI equipment to the procuring activity's formulated maintenance concept without having evaluated it, along with other feasible maintenance and logistics support approaches, for economic implications. The comparative evaluation should be accomplished by LSA (FMEA, MEA, ORLA, and LSC studies) in conjunction with the design synthesis process to produce a modular design configuration and associated maintenance and logistics support plan that reduces life-cycle cost. Contractual provisions should be written to make this point clear.

15. The ILS portions of the contract must address both the qualitative and quantitative implications of other disciplines on ILS -- in particular, how these implications affect the development of the supportability design criteria. Human engineering, safety, configuration management, vulnerability, and survivability can all affect the supportability of the system design as it progresses to its final form. Changes in these areas must be assessed by both the contractor and the government to determine their impact on supportability.

16. It is beneficial for the government, particularly government ILS personnel, to be represented at PDRs and other major activities between the contractor and subcontractors/vendors in order to ensure a proper flowdown of ILS considerations. If provision for a government representative at contractor/subcontractor PDRs is included in the contract, the contractor will make a more concerted effort to provide tighter control, thus providing a more supportable system.

17. The contract should direct the contractor to conduct a study to determine it it is more cost-effective to develop technical training and technical documentation organically or by the contractor. For example, it may be less costly to produce technical documentation organically, utilizing and modifying technical documentation for similar equipment in the government inventory, rather than to have the contractor develop it. Ensure

that the contractor is directed to provide all assumptions and cost estimates utilized in his analysis, including the rationale utilized in his assumptions. (This section of the contract should be coordinated with the Air Training Command representative at the local product division.)

18. When inserting milestones in the contract, relate the milestones to program events rather than to calendar dates. Calendar dates for events have a tendency to slip, whereas the events themselves do not.

19. From a support standpoint, an increase in the number of ECPs generated will generally result in an increase in support problems and associated costs. The government should encourage the contractor, therefore, to limit the issuance of ECPs to those which are essential to the attainment of the system mission requirements, or to those which are specifically aimed at reducing LCC consistent with the system mission requirements.

20. Since training needs require sufficient lead time prior to need date, it is necessary to write preproduction specifications based on uncertain system configurations. Therefore, the contract must contain clauses to direct the contractor to update the training equipment/spares, etc., to the production configuration as soon as practical after the system configuration has stabilized.

21. All ECPs submitted by the contractor must have assessed the impact on training and training support requirements.

22. It is best to develop and implement a procedure by which the resident ATC offices are kept apprised of program schedule changes so that attendant training schedules can be adjusted.

23. Ensure that the contract requires the contractor to develop TOs consistent with the skill levels of the Air Force personnel who will utilize them. This is accomplished by utilizing AFADs that require a checklist of the proper military specifications.

24. In the application of reliability-improvement warranties (RIW), the contract must be very precise and complete in describing every aspect of warranty performance in detail, especially the listed criteria for failures. (See Appendix E for more information on RIW.)

25. It is absolutely essential to the success of any integration effort that the head of the contractor's ILS organization have sufficient authority and "clout" to impose an integrating discipline on all involved prime and vendor organizations.

26. When preparing RIW provisions for the SOW, use such terms as MTBF (or MTBD) with care. For example, if MTBF guarantee provisions are applied, the standard by which time is measured and failures are determined must be clearly defined because conflicting definitions or uses of these terms may appear elsewhere in the contract. Furthermore, the standard by which RIW performance is measured should be carefully evaluated in light of warranty objectives before provisions are written. Such parameters as operating time required for ground tests, false-removal rate, and end-item operating time or utilization rate should be evaluated before establishing a standard of measure. Although MTBF is frequently used, end-item operating hours, calendar time, or demand rate may be a more useful measure. (See Appendix E for RIW applicability criteria.)

ILS ANALYSES AND PROCEDURES

1. Ensure that the contract defines all terms for the various cost models and analyses employed. Ensure that the terms, where similar for the various models, are consistent with one another and consistent with current Air Force terminology.

2. The following comments deal with the lessons to be learned in applying an ILDF on the A-10 program. The same holds if LSA or any data-file technique is applied.

   a. Set a definite date for 100 percent of spares to be put into LSA or ILDF, assuring that it will allow sufficient time to procure all spares production plus administrative lead time away from first article delivery.

   b. Since LSA or ILDF covers DIs procured by AFLC and AFSC, obtain an agreement between commands on a split-funding arrangement for LSA or ILDF before the DIs are placed on contract.

   c. Assure that funding for an LSA or ILDF effort is funded on a fiscal-year basis and not on an A/C procurement option basis, which may have considerable time-frame overlaps. This eliminates duplicate costs and separates the data procurement from actual aircraft procurements.

   d. Do not allow a split effort -- hard-copy documentation and mechanical (ILDF) data -- if it can be avoided. A problem may arise as to consistency of data and final entry of all data to the data file.

   e. Data elements for the ILDF should be identified for "timed" entry to the file from a contractual standpoint since not all elements are available or even pertinent when the part number is entered in the file. If specific "times" are not specified, data may be inserted much too late to be effective ("after the fact" data).

   f. Set up specific tasks in the contract dealing with a "test" phase of LSA or ILDF inputs to assure that the contractor is preparing data entry correctly and to assure that the government can process data correctly.

   g. Identify specific dates for LSA or ILDF Guidance Conferences to assure that the contractors understand LSA or ILDF concepts and that their data-element definitions coincide with AF intentions.

3. Ensure that the contractual requirements direct the contractor to perform ORLA comparative evaluations initially as part of (not in conjunction with) the CI engineering design process in order to influence the functional and physical design configurations of LRUs and SRUs to reduce life-cycle cost. Thereafter, ORLA results and recommendations should be updated where any design/maintenance-plan/operational-deployment changes alter any of the input information and data required in the initial ORLA studies. The contractor should be instructed not to restrict the scope of the ORLA evaluations to the maintenance concept formulated by the procuring activity but to consider all feasible alternatives; otherwise the opportunity to reduce LSC is replaced with a budgeting cost accounting exercise which provides little change of cost avoidance.

4. Ensure that the contract directs the contractor to perform ORLA analyses only for those LRUs for which a choice of maintenance exists. Normally, ORLA is required only for CFE or modified "off the shelf" equipment, where the repair/discard decision is an unknown. When ORLA must be accomplished for complex systems or support concepts, ensure that the analyses employ cost models versus "table top" ORLA, in which one or more people decide when, where, and how an LRU will be repaired.

5. Ensure that the contract requires the contractor to utilize reliability figures for equipment in his ORLA analyses that are consistent with the program goals and attainable within the allowable program budget. For example, if a particular subsystem or component has a demonstrated MTBF of 500 hours, which is satisfactory for the performance of the system and consistent within the program budget, the contractor should not be performing ORLAs for that particular subsystem or component with an MTBF of 600 hours or more.

6. Provisioning conferences have often negated the results of ORLA analyses because of lack of coordination and review with AFLC. It is critical that before the contract is written, the AFLC offices involved in the provisioning conferences be determined (including those personnel from the prime ALC, TRCs, and RPTs, and those from the affected AFLC MM and MA offices) and an ORLA coordination cycle be developed. Then, where practical, include an ORLA review cycle for those offices in the SOW, stating that approval of the contractor's ORLA is contingent upon approval of the review cycle. The extra cost involved in accomplishing this, however, must be more than balanced by the projected potential program savings.

7. Attempt to ensure that the data requirements, procedures, and reporting formats for the various cost models and analyses are reviewed and coordinated with the prime ALC and the applicable

IMs prior to inclusion in the contract. If this is not possible, statements might be incorporated in the contract requiring the contractor to submit illustrative examples as part of his ISP data item. Potential users could then review the examples for acceptability before giving the contractor final approval.

8. Ensure that the contractor uses good pricing data for input into his ORLA. These data must reflect the resources and costs utilized in his formal maintenance engineering analysis (MEA). The pricing data should be reviewed and approved by the AFLC equipment specialists before the ORLA is started.

9. Considerable care should be taken to define and establish an ORLA model that can handle analyses for large numbers of end items (e.g., aircraft) and small numbers of end items (e.g., support or training equipment) and provide reliable conclusions. Two or three different ORLA models may be required.

10. The ORLA model illustrated in AFSCM/AFLCM 800-4 is a sum-total LSC model and not a differential costing model; therefore, it includes all recognized support cost elements and their values and should be suitable as an LSC model for the purposes of total life-cycle-cost accounting. If, however, the LSC model employed is not compatible with the ORLA model and a different model must be used, the factors included in the LSC model used for budgetary cost accounting must include the same factors that were considered and evaluated in the development of the formal maintenance and logistic support plan (MEA, LSA, ORLA, etc.).

11. Ensure that the contract directs the contractor to include facility, training, technical data, technical manuals, inspection intervals, support personnel, SE, spares, and R&M considerations in his LSC model. Failure to do so may invalidate the LSC analysis because the cost impact of any one or all of these considerations may be significant.

12. The contractor's LSC analysis must be iterative and must identify those LRUs which exhibit the potential for being high-support-cost candidates. Once this identification has been made, the contractor must shift his attention to reducing the support costs for these items.

13. Ensure that the contractor is required to deliver periodic reports containing summaries of his LSC trade studies and to document his trade analyses. He must state all assumptions utilized in the analysis in each report.

14. It is extremely important during source selection that the contractor's cost proposal be comparable. Because of a lack of well defined reporting formats, some recent source-selection cost panels have been unable to analyze and compare proposals effectively, emphasizing the requirement for well defined reporting formats on paper or punched cards.

15. The Program Management Plan (PMP) provides for coverage of computer resources and the preparation of a Computer Resources Integrated Support Plan (CRISP). The CRISP identifies organizational relationships and responsibilities for the management and technical support of computer resources. The CRISP functions during full-scale development and after system transfer as the basic agreement between the supporting and using commands for management and support of computer resources.

INITIAL SPARES/REPAIR PARTS PROVISIONING

1. Assure that adequate funds are committed upon contract award to enable full implementation of the contractor's interim release authority and responsibilities. Failure to do so can result in the delay of long-lead-time items that are required for the support of "early need" contract end items.

2. Consider awarding separate contracts (separate from the production contract) for spares procurement. This may be beneficial for two reasons. First, spares pricing is extremely difficult to obtain during the period of negotiation for the production contract -- particularly in a noncompetitive atmosphere, where the contractor might be unwilling to tie the spares pricing to the pricing of end items or installs. Second, the production contract always contains a cost ceiling that can adversely affect spares purchasing if the system cost for the contract approaches the ceiling.

3. If a separate spare/repair-parts contract is going to be utilized, a number of requirements must be considered. The two contracts must be cross-referenced. Any change to hardware on the production contract requires change to the spare/repair-parts contract for configuration control of delivered and undelivered hardware and data changes. The ECP/Configuration Management controls applied on the production contract must include words regarding applicability to spare/repair parts. The use of tooling, test equipment, and production capability must be prorated between the production and spares contracts to ensure concurrent delivery. Serial numbers assigned to spares must not duplicate serial numbers assigned to production items. Correction of Deficiency Clauses, production tests, and other quality areas must cover all hardware delivered and will be difficult to manage. Finally, the government should continue to make every effort to relate the spares pricing to the end-item pricing.

4. Ensure attendance and participation of personnel from the cognizant Technology Repair Center in spares-guidance and source-coding meetings.

5. Ensure that the contract directs the contractor to provide options for procurement of reprocurement data for spares and follow-on support. This will allow the government the option of competitive procurement of selected spares if it is deemed beneficial.

6. For some acquisition situations, the use of "Spares/Acquisition Improvement Program" (SAIP) for procuring initial spares is worthy of consideration. Judicious use of this concept can

result in program cost savings because of the attendant price break received by ordering spares at the same time the production installs are procured. Coordinate the SAIP effort with the Investment and Expense Spares OPRs.

7. Before writing the provisioning section of the contract, review Section 2, Part 2-200 and Section 5 of AFR 57-6, paragraph 1-109 of AFLC Supplement 1 to AFR 57-6, MIL-STD-789B, and MIL-STD-885B for information regarding what data the contractor must provide to AFLC for replenishment-spare-parts procurement. Requirements for contractor procurement-method coding of selected spare parts, verification of contractor-recommended codes (CRCs), and reprocurement data packages for competitively coded items must be included in the CDRL unless sufficient justification exists for waiving these provisions. These data are essential to assuring that noncompetitive (sole or selected source) procurement of follow-on spares is justified. Failure to include DI-P-3461, DI-P-3472A, and DI-E-3177 in the contract will adversely influence the logistics support cost of the weapon system. For additional information on competitive breakout, contact the Investment and Expense Spares OPRs.

8. Ensure that the contract specifies that reprocurement data delivered shall have sufficient detailed manufacturing and testing information to assure that follow-on spares procured with those data will have the same standards as original equipment.

SUPPORT EQUIPMENT (SE)

(See Computer Programming Section for additional, related information.)

1. Avoid situations in which the contractor is allowed to change from GFE to CFE after the contract is in effect. Encourage the SPO personnel not to enter into discussions with the contractor personnel that the contractor could interpret as a desire for such a change, particularly if the specification is weak or indefinite.

2. The wording of the SOW must direct the contractor to ensure that subcontractors and vendors design test points into SE in accordance with the development (Part I) specification. This will prevent, for example, "surprises" in the test phase, when it could be discovered that the SE does not have enough test points to be tested properly. Redesign and fabrication to incorporate the missing test points are very expensive, in terms of both program time and cost.

3. To the maximum extent possible, avoid procuring SE on a "to be determined" basis.

4. There is a current trend in the government to procure more versatile SE designed for a variety of functions, rather than the highly specialized gear to provide a single function, because of program cost constraints. If it is possible, and can be determined beforehand to be potentially beneficial, the contractor should be told to consolidate the design functional requirements for SE as much as practical within the design goals.

5. In acquisition of depot-level SE, the equipment developed is usually CFE and is very expensive, particularly when it is built in conformance with applicable military specifications. A more positive approach is one that drives the development of common depot-level support equipment or factory test equipment (FTE), or possibly even that which involves transition of FTE to the depot at the end of a production run. It is recommended that, upon agreement with personnel from the cognizant Technology Repair Center, SM or IM, contract provisions be established to direct the contractor to determine if the production-line test equipment should be selected for the depots. If so, provisions for granting the contractor a waiver from the applicable military specifications should be incorporated.

6. If proliferation of support equipment is to be controlled, contractors must be given specific guidance for control. Since support-equipment identification at the various levels of

maintenance is more or less an iterative and sequential process -- i.e., first the installed equipment, then organizational and intermediate-level SE identifications, and, last, depot-level SE identification -- the control of SE proliferation must begin at the point of organizations of need, i.e., design of the installed equipment or end item. Perhaps a parallel to a "Design to Cost" requirement should be a "Design to Existing Support Equipment" requirement, with identification of specific existing support equipments, fall-back positions of existing equipments with adapters or interface packages, and a last choice of new CFE SE. As long as hardware designs are allowed to be finalized without definitized support-equipment requirements, SE proliferations will continue.

COMPUTER RESOURCES IN SYSTEMS

1. The contract should address the need for new ATE compilers to be designed compatible with the IBM 360-65 computer at Hill AFB. [Note: Each ALC is to have Remote Job Entry (RJE) terminals which will permit ALC communication with the computer at Hill AFB.]

2. For systems incorporating Operational Flight Programs (OFP), Aircrew Trainer Simulators, Electronic Warfare, or Command and Control, the degree of organic or contractor support must be identified. The system support for computer programs must also be addressed.

3. Ensure that the contract contains provisions concerning Rights in Computer Resources as written in the Armed Services Procurement Regulation (ASPR).

4. Ensure that the contract directs the contractor to comply with the referenced automatic data processing standards, to use higher-order language where practical, and that computing systems are compatible with existing USAF facilities.

5. Ensure that the contract directs the contractor to consider commonality of computing equipment for both the operational and support phases of the system design.

6. Ensure that the contract directs the contractor to provide growth capability for the computing system and its support systems.

7. Ensure that the contract provides for the development programming to be accomplished on a computer that is compatible with the supporting command's large-scale machines.

8. Ensure that the contract directs the contractor to conduct a cost trade-off study to determine the method of computer programming support (either organic or contractor). The contractor should be required to verify or validate the results of this study, particularly the cost inputs, and should include all assumptions utilized in this study in his report.

9. Ensure that the contract directs the contractor to identify the computer programming support facilities as a requirement for the production contract when a decision for organic support is made. The Computer Resources Integrated Support Plan (CRISP) should be referred to for these requirements.

10. Assure that the contract directs that computer programs are to be managed as Configured Items (CIs) and identified by the new Computer Program Identification Number (CPIN).

11. If the term "Software" must be used in the contract, clearly state its definition. The definition must be the same as that contained in the latest ASPR, Sections 1-201.35, 1-201.36, 1-201.37, and 1-201.38 concerning Data, Technical Data, ADS Software, and Computer Programs. The problem is that many regulations and directives identify software as the technical data and reports as well as computer programs, compilers, etc., whereas experience shows that general usage implies only computer programs, compilers, etc. The term is subject to ambiguity and should be avoided if possible. More suitable terms are Weapon System Computer Resources or Imbedded Computers, and reference should be made to AFR 800-14.

12. Ensure that the contract directs the contractor to use common test equipment (equipment that can be utilized for other programs and other systems) for support of his computer programs to the maximum extent practicable. If this cannot be done, serious thought should be given to having the contractor provide the support.

13. Ensure that the contract states that computer programming requirements for the automatic test generator (ATG) system will be provided by the government.

14. The SM, Technology Repair Center, and cognizant IM for automatic test equipment (ATE) should participate in establishing the requirements for depot-level ATE computing programs.

PACKAGING/HANDLING/STORAGE/TRANSPORTABILITY/TRANSPORTATION

1. Ensure that the SPO utilizes expert transportation/transportability/packaging personnel of the Buying Divisions and the applicable ALC in accomplishing all SOW actions and in approving contractor-developed data related to each function.

2. Ensure that contractual language clearly provides the contractor adequate instructions to implement appropriate management controls to assure proper completion of transportation/transportability/packaging tasks.

3. In order to avoid giving inadequate or conflicting guidance and data to the contractor, a focal point in the System Management Office will ensure that a coordinated position of all transportation/transportability/packaging requirements is developed by the Buying Service's and the applicable ALC's functional technicians in these areas.

4. Avoid the unilateral application of packaging DIDs in the CDRL. Challenge the need for each DID, utilizing the "murderboard" approach (see Appendix C).

5. Ensure that the contract addresses the safeguarding of Classified/Sensitive Item Shipments and proper consideration for dangerous cargo, if applicable. Ensure also that the facilities to be used for storing Classified/Sensitive Shipments have the proper facilities clearance.

6. Ensure that the contract addresses the question of who has "title" to parts during the transportation and handling of test spares.

7. When a Special Mission Airlift request is foreseen for transportation of classified material, the contract should direct the contractor to ensure timely delivery of the equipment/data and determine that it is properly marked.

8. Ensure that new transportation/transportability/packaging innovations are included in the SOW by which the contractor will consider reducing costs related to fulfilling transportation/transportability/packaging requirements.

MAINTENANCE

1. Before submitting the maintenance task for inclusion in the statement of work, in addition to sending a copy to the SM, also send a copy for review to HQ AFLC (MA), Maintenance Planning, the MAW code at the assigned ALC, and the AQ staff officer at the procuring activity's product division. They are capable of materially improving the task statements.

2. Nondestructive inspection techniques should be considered for every new acquisition. Coordinate all inquiries with the NDI OPR (SA/ALC) for assistance.

3. Direct the contractor to design and construct a mock-up (perhaps even a Class I mock-up) for use in troubleshooting high-maintenance areas in the system design. Such mock-ups, often even some constructed with cardboard, are ideal for uncovering hidden "pitfalls" in the system design.

4. Consider placing Contractor Engineering and Technical Service (CETS) on contract when the system being bought involves new "state of the art" equipment where the maintenance and training requirements are virtually unknown. Under these circumstances CETS is a very effective way to procure initial maintenance and maintenance training.

5. The use of more specific maintenance goals in the contract should be considered for each new system acquisition. Rather than call out a very general target, such as so many maintenance man-hours per operating hour, it might be beneficial in certain cases to require the contractor to design for so many man-hours for turnaround, refueling rates, etc. By this means, specific mission requirements such as mission readiness rates can be more specifically addressed in the design process.

6. Ensure that the contract specifies special tests to be conducted during DT&E to validate the approved maintenance concept.

7. The number of repair and modification kits should be held to an absolute minimum since they frequently become maintenance "bottlenecks" when parts are missing, individual parts will not function, or kits are not available. These conditions pose serious production problems when individual parts comprising the kit are not stock-listed and there are no technical data for local manufacture or substitution. If repair and modification kits are necessary, it is recommended that individual parts be stock-listed and that technical parts specifications be made available.

8. It is important to ensure that the contract addresses time limits for the contractor to hold government materials without producing assets. There have been instances in which assets that could be produced with government resources were delayed for months by a nonproducing contractor, adversely affecting high-priority missions.

9. Guidelines should be incorporated into the "Maintenance Planning" section to prompt the incorporation of contractual provisions to ensure that maintenance planning is the result of, not just an interface (coinciding schedules) between, CI equipment detailed engineering design process and ILS program elements but an actual interaction and impacting of the two programs. The management concept of developing the interaction should at least follow the intent of Figure A2-1 of AFSCP 800-21, with the proper mix of contractual requirements from MIL-STD-499A and MIL-STD-1388-1.

RELIABILITY AND MAINTAINABILITY INTERFACE

1. There is a need to ensure that R and M periodic reporting schedules for the contractor are included in the CDRL. The schedules should be constructed to allow sufficient time prior to key program events for the contractor's R&M data to be reviewed by all concerned in the SPO, including those concerned personnel in the ILSO.

2. Before the SPO proceeds to write the R&M portion of the contract, the possibility of making the formal maintainability demonstration a contractual option with strong incentive influence should be considered. Since the life cycle of a program frequently consists of several contracts and O&M activities, total verification can result only from a time series of several tests.

3. Full-Scale Development M demonstrations, conducted to provide test results for a production decision by higher authority, shall utilize the Air Force maintenance personnel who are programmed to maintain the system. If the contractors use highly skilled labor in their maintenance demonstrations, the resultant M times will probably not be indicative of what the government can expect in the field.

4. With regard to R demonstrations, coordinate the requirement to have the contractor demonstrate test failures in a "real world" environment rather than the artificial environment. The contractor may insist that he can analytically show the additional impact between the artificial and the actual environments, and in some cases he can; in general, however, he cannot analytically duplicate the "real world". "Real world" testing can cost more but can be cost-effective.

5. Do not hesitate to use qualitative M requirements when the need arises. Examples are:

   - All connectors will be designed to preclude induced damages to connector pins.
   - Adjustments must be designed to compensate for all tolerance build-ups.
   - The removal of one unit will require the removal of no other unit.
   - All lamps shall be easily replaceable at the organizational level.

6. Ensure that the contract contains statements to assure that R&M interface data (MTBF, etc.) are inputted to the LSAR data sheets.

7. Ensure that the R&M personnel are kept informed as to how their R&M decisions affect the logistic support costs for the system.

GENERAL LESSONS

(Note: The topics discussed in the following "lessons to be learned" paragraphs are related to areas interfacing with logistics as well as those areas exclusively concerned with the logistics elements.)

1. Read all new directives before writing the ILS portion of the contract, particularly those of division and command, and keep the directives file updated.

2. In general, avoid referencing government directives and regulations in contracts. If government directives or regulations are used, remember that ASPRs take precedence over both.

3. Ensure that there are tight restraints in the contract to control "early release" of CIs -- that is, release to production before CDR. Premature release of CIs before the configuration is stable can result in costly mistakes.

4. Ensure that all definitions in the contract are precisely and concisely defined, particularly "failure", "malfunction", etc. Attempt to obtain agreement on all definitions with contractors before the contract is signed.

5. Ensure that interface control drawings (ICDs) that have an impact on the logistics characteristics are carefully evaluated and that appropriate requirements to manage their acquisition are incorporated into the SOW/CDRL. Mismanaged interface control drawings normally result in expensive redesign. Implement Appendix II of MIL-STD-483 if ICDs are required.

6. Correlate CDRL data-delivery dates with corresponding master-schedule events for technical reviews/audits. Ensure that the contractor-generated data are scheduled to be delivered to the SPO 15 to 30 days prior to each event. These data generally provide the background information upon which design decisions are made; thus their timely delivery is very important.

7. Insist that all changes following PCA are channeled via the ECP route. Avoid loopholes in the contract that can allow informal contractor in-plant and in-field changes. For example, if such changes do occur, chances are good that other areas affected by the changes such as SE, training, etc., will not be considered and changed accordingly, thus resulting in an unsupportable item in the field. The ACO must exercise strict control over Class II change definitions and processes.

8. Avoid the allowance of contract changes where the "not to exceed" amount cannot be determined beforehand. Insertion of such changes in the contract will almost always result in increased costs for amending the contract.

9. Contract Summary Reports (CSRs) must be reviewed by all SPO personnel concerned. At times some delivered CSRs are either inaccurate or inadequate.

10. Terms such as "to be negotiated later" or "to be determined" or "contractor will monitor" should be avoided in contracts, particularly in data-item descriptions. Be specific or else question whether such data are actually required. Also, avoid words such as "optimal", "optimum", "maximum", "minimum", "should", "will", etc. For example, "optimum" means the most favorable condition; with the exception of a few mathematical expressions, it cannot be achieved and can allow considerable latitude to the contractor. Also, "shall" and "will" do not have the same meaning in a legal sense. "Will" indicates willingness on the part of both parties, whereas "shall" is directive from one party to the other.

11. Ensure that data requirements that are called for in the SOW are contained in the CDRL. It may be advisable to report actual DID titles in the SOW task statement to ensure correlation. In any event, the SOW and CDRL should be thoroughly reviewed before the contract is signed.

12. Avoid the use of "boilerplate" for contract work statements as much as possible. Instead, tailor each contractual statement to fit the needs of the particular system. This would also apply to the development of the CDRL.

13. Read the contract before it is signed. Make sure it is worded the way it was intended to be worded.

14. Avoid asking for "proprietary data" in the contract. Ensure that the data being bought (assuming the price is reasonable) can be used independently by the government. For example, the government can be severely hampered in utilization of proprietary data if every time it wishes to use the data in a manner not specified in the contract, the government must obtain written approval from the contractor to do so. If the contractor for some reason does not want his data used in the manner being proposed, he can refuse permission to the government. If procurement of proprietary data cannot be avoided, a specific and detailed procedure must be placed in the prime contract and "rolled down" to vendor contracts for identifying and validating proprietary claims during the initial selection of equipment. These claims and their logistics impacts

must be made a point of consideration in the selection of equipments. However, rights to technical data and computer programs must be considered when the contract requires organic support for the system's computer resources. Consideration must be given to Unlimited, Limited, and Restricted Rights.

15. It is important to have concrete guidelines for use in evaluating contractor efforts in accomplishing his trade-off studies. Thus the contract must direct the contractor to provide factors that are really measurable and to specify specific tests or demonstrations to be conducted for evaluation and validation. For example, if turnaround time (TAT) is a parameter used for analysis, the contract must contain provisions that will ensure measurement of TAT in maintenance tests later in the program, allowing the contractor's estimate of TAT used in his analysis to be validated by the field tests.

16. Make every effort to ensure that the contract (or classified attachments thereto) delineates the operating scenario (where deployed, size of squadron, rate of growth, etc.).

17. Ensure that the contract addresses means of handling inflation, i.e., the method for computing fixed costs from the base year to some out year, and vice versa. This is particularly important in LSC trade-off analyses, when "out year" costs often have to be projected.

18. Screen all data items before they are incorporated in the contract. Use a "murderboard" approach for scanning purposes. The questions contained in Appendix C can be used for prescreening each data item before it is incorporated in the CDRL. Also, data-item requirements can often be fulfilled more economically by modifying standard formats and contents to agree with existing contractor data systems. These trade-offs must be a part of the original contract definition.

19. Include provisions in the contract to direct the contractor to use as many standard parts and manufacturing techniques as possible in a manner consistent with the program's reliability and maintainability goals.

20. If at all possible, do not inadvertently use contract language that will defer decisions to the contractor.

21. Remember: (1) It requires three years' lead time for development and construction of new facilities.

    (2) It requires two years' lead time for modification of an existing facility.

The lead times cited above are the minimum and can easily be exceeded, depending upon the time for construction of a new facility or modification of an existing one. Also, the current trend is toward modification of existing facilities.

22. Ensure that the data package contains DIs to obtain the contractor's facilities and equipment plan for the program.

23. Do not overapply government manuals, pamphlets, and military standards in contracts as references. Take the time necessary to ensure that if only a portion of a military standard applies to the particular problem, only that portion is referenced. It is important to remember that the government will have to pay the contractor for the review time necessary to determine which portions of a reference are applicable.

24. Start SM and IM participation in the development of the contract as early as possible. For example, the specific ILS language for a specific subsystem or module very often can be obtained from the IM who specializes in supporting that particular piece of equipment.

25. Cross-reference in the contract as much as possible, even though it may be redundant. For example, if a special-provisions section refers to a particular task in the SOW or a DID in the CDRL, state the particular task and DID number in the applicable provisions section.

26. The DIDs called out in AFLCR/AFSCR 800-24 are being upgraded to 7000 series; in the process some are being modified. Whenever possible, the 7000 series DIDs should be used in the contract.

27. Experience demonstrates that one of the largest cost items in support is the man-hours associated with system periodic inspections. Thus every effort should be made to substitute programmed scheduled inspection with other, less expensive techniques (such as built-in test or higher reliability, etc.) where possible, and consistent with the program cost and performance goals.

28. In some cases, if the time frame for DSARC II and III were stretched out at the expense of delaying IOC, there would be a marked improvement in the logistics for the deployed system. The additional time allotted could be used to incorporate known design corrections, as a means of improving the system support characteristics. In most instances, the logistics support cost drives the system life-cycle costs; and if the LCC can be reduced through a change in IOC, then DoD and Congress should be encouraged to do so. In general, therefore, IOC, like other program parameters, should be made subject to trade-off analyses.

29. Air Force Acquisition Documents have precedence over the SOW and other portions of the contract. Familiarity with the AFADs, therefore, is a necessity.

30. Consolidation of the DT&E and OT&E test requirements can result in significant cost savings if the tests are jointly planned, coordinated, and conducted. Experience has shown that the joint DT&E/OT&E approach can eliminate duplicative testing, thereby resulting in substantial cost savings. AFSC Supplement 1 to AFR 80-14 requires that a determination be made for each program for a decision on whether DT&E and OT&E should be joint or separate efforts. Ensure that the question of a joint test program has been addressed before the SOW is prepared; in particular, ensure that compliance with AFR 80-14 is accomplished.

31. When MIL-STD-130 is used for hardware identification, be sure that the permanent information is included on a separate plate from the variable-information plate. The continual modification of the CI, which results in the changing of the part number and stock number on the plates, many times results in loss of serial-number identification or duplication of serial numbers because of misidentification after the modification. AFM 800-14 requires computer programs to be managed as CIs (CPCIs) and to be identified by use of a Computer Program Identification Number (CPIN).

32. All engineering and logistic critical items must be identified as configuration items (CI) and managed according to AFR 65-3.

33. Contracts between a prime contractor and the government set out many requirements that must be performed or met by a rather large "Christmas tree" of vendors. Many times contractual requirements are imposed on a prime contractor that are contrary to existing subcontract provisions. It is imperative for a successful integration effort that all contractual requirements to be imposed on a prime or integrating contractor be identified early enough in the acquisition process to enable all subcontractor contractual instruments at all indentures of equipment and/or effort to be configured to support and complement the prime contract. The prime contract must specify the mandatory "rolling down" of such requirements throughout all indentures of vendor hardware effort, and the acceptance or rejection of such requirements must become a consideration in vendor selections.

34. There must be positive interaction between the engineering design evolutionary process and the FSD ILS program to develop finite supportability design criteria and quantitative supportability requirements. It is not enough merely to state than an ILS program is most effectively implemented during this CI equipment design stage; it must influence and affect design so as actually to reduce Life-Cycle Cost. This interaction might be forced through the selection of contractual provisions from both MIL-STD-499A and MIL-STD-1388-1.

SECTION THREE

ILS CONTRACTUAL PROVISIONS

INTRODUCTION

The checklists and sample ILS contractual statements contained in this section are applicable to system acquisitions being procured at each of the product divisions. The information is representative, however, and should not be interpreted as being required in total by every system acquisition. Since each system acquisition is unique and therefore requires specific attention, the application of the ILS contractual considerations must be tailored to each system's needs.

The checklist itself is based on information contained in AFLCR/AFSCR 800-24, *Standard Integrated Support Management Systems (SISMS);* ESDP 800-4, *Statement of Work Preparation Guide;* and ASDP 800-10, *Integrated Logistics Support (ILS) - Planning for ASD Systems and Equipment.* The sample contractual statements are based on information presented in SISMS and ESDP 800-4, on statements included in actual contracts recently awarded for new-system acquisitions, and on guidance contained in special studies. In order to utilize the checklist and contractual statements effectively, the reader is urged to review both the SISMS manual and the local product division's SOW preparation guide (such as ESDP 800-4) and other documents listed in the Review Reference column before attempting to develop the SOW.

The remainder of this section consists of an ILS contractual checklist and sample ILS contractual statements.

ILS CONTRACTUAL CHECKLIST

The various ILS data/task contract elements contained in the checklist are applicable primarily to the development of the statement of work. However, the logistics supportability cost commitment (LSCC) and reliability improvement warranty (RIW) checklists and statements are generally utilized in the Special Provisions section (Section J) of the contract. Data-item descriptions associated with each data/task contract item are listed in the DID Required column.

The Review Reference column lists those documents which must be used to develop the actual ILS contractual statements or to assist in completing the task statements. The next column identifies documents that can be referenced in the contract "for information only" or for use by the contractor in responding to the contractual requirements.

The checklist is presented on the following pages.

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
1. ILS Management				
1.1 Address general ILS requirements		AFLCR/AFSCR 800-24 Ch. 2 AFSCP 800-6 DODI 4100.35G PMD, PMP ILSP DI-UL-69-6 (ILDF for A-10 program) AFR 800-14, ASPR	MIL-STD-1388 MIL-STD-499A	1. MIL-STD-1388 & MIL-STD-499A must be tailored to each program. 2. Contact A-10 program office for copy of the DID, DI-UL-69-6.
1.1.1 Define program logistics policy NOTE: Ensure that program specification formats and classifications selected for application from MIL-STD-490 are compatible with the program phase, maintenance concept, and sparing concept. This is to assure that adequate instructions are available in the proper time sequence of program events to assist design, development, and support of the system.		AFR 800-2, AFR 800-8 AFP 800-7 MIL-STD-490 DODI 4100.35G	MIL-STD-490	
1.1.2 Define government responsibilities				
1.1.3 Define contractor responsibilities				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
1.2 Define ILS role in system acquisition		ROC, PMD, PMP ILSP DODD 5000.1		1. The program ROC and PMD may not be issued at the time of contract preparation. In order to determine and then define the ILS role in the contract, it may be necessary to contact the cognizant personnel in DoD or USAF HQ. 2. It is emphasized that policy statements, unsupported by funds released in adequate amounts to accomplish the tasks within the time frame, are of little benefit. The decisions made concerning the weight given to support and the DTC/LSC trade-offs must be fully explained to each of the supporting ALC equipment specialists, IM specialists, and provisioning specialists who will be reviewing repair level decisions in regard to their own experience. 3. Refer to Appendix F for an example of an award fee program for support cost control.
1.2.1 Weight given to support versus performance, cost & schedule				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
1.2.2 Incentive fee program for support cost control (LSCC, RIW, DTC, etc.)				
1.3 Define Integrated Support Plan (ISP) requirements	DI-L-6138A DI-L-6143	AFLCR/AFSCR 800-24 Ch. 2 MIL-STD-1388 MIL-STD-499A	MIL-STD-1388 MIL-STD-499A	
1.3.1 Requirements, procedures and milestones				
1.3.2 ILS management interfaces: Although the following are not ILS elements, it is necessary that information generated from these areas be disseminated to the ILS functions to determine the impact on system supportability		AFLCR/AFSCR 800-24 Ch. 2 AFSCP 800-21 AFLCP/AFSCP 800-19		NOTE: Data evolving from these interface tasks should properly be reflected in the LSAR or ILDF to assure continuity of data.
1.3.2.1 Design-To-Cost (DTC) interfaces: Ensure DTC interface with LSC trade-offs is properly addressed and that DTC goals are defined for ILS elements by WBS category or equivalent				1. Refer to Appendix G for an example of DTC/LSC trade-offs contractual statements.
1.3.2.2 Technical data interfaces: Ensure data management provisions and delivery are consistent with logistics data requirements . LSA, ISC . M and R interface	DI-V-7000 DI-C-3149 DI-E-3153 DI-E-3177 DI-P-3461 DI-P-3472A	AFLCR/AFSCR 800-24 Ch. 15 AFR 800-14, ASPR	AFR 800-14	

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
. Training interfaces . Provisioning . Engineering & reprocurement data . Technical drawings (Type I, II, or III) . Support equipment				
1.3.2.3 Technical manual interfaces: Ensure that technical manual development is consistent with maintenance, SE, PHSTT, and spares procurement requirements and includes provision for technical manual verification.	DI-M-6154 DI-M-6156 DI-M-3407A	AFLCR/AFSCR 800-24 Ch. 16 MIL-M-38784A TO-00-5-1		
1.3.2.4 Facilities interfaces: Review SOW to assure that complete description of facility plans, requirements, and constraints (including SE design constraints) are addressed	DI-S-6173A DI-S-6174A DI-S-6175A	AFLCR/AFSCR 800-24 Ch. 9 AFR 800-14, ASPR		
1.3.2.5 Training program interfaces: Training requirements must be consistent with SE, PHSTT, spares, preoperational support, technical manuals. Ensure training spares and SE are compatible with program schedule and spare requirements	DI-H-6131 DI-H-6199 DI-H-6197	AFLCR/AFSCR 800-24 Ch. 13		

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
1.3.2.6 Test interfaces: Establish and demonstrate logistics supportability criteria during DT&E and OT&E		AFR 80-14		
1.3.2.7 Engineering Change Proposal (ECP) interfaces: Ensure the contractor evaluates impact of each ECP on the maintenance concept DTC target and LSC and is given proper instructions on how to apply and document the results for each ECP submittal	DI-E-3128	TO 00-35D-54 AFR 65-3 AFR 800-8 MIL-STD-480 MIL-STD-490 AFR 80-30		NOTE: Configuration management disciplines must be imposed on all subcontractors and vendors.
1.3.2.8 Cost/schedule control systems criteria (C/SCSC) interface: The contract should impose C/SCSC on the contractor to provide visibility of proposed versus actual costs for ILS tasks	DI-F-6000A	AFSCP/AFLCP 173-5 MIL-STD-881 DODI 7000.2 DODI 7000.6 DODI 7000.8 DODI 7041.2		
1.3.2.9 LSA or ILDF interface				
1.4 State contractor's management and control requirements on subcontractors and vendors		AFLCR/AFSCR 800-24 Ch. 2 MIL-STD-483		NOTE: Configuration management disciplines must be imposed on all subcontractors and vendors.

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
1.5 Logistic supportability cost commitment provisions (The reader is urged to review Appendix D before proceeding further)		Appendix H		NOTE: The following checklist of logistics supportability cost commitment (LSCC) contractual provisions is based on a life-cycle-cost/logistics support cost methodology for determining deficiencies. It involves the guarantee by the contractor that the Measured Logistics Support Cost (MLSC) shall not exceed the Target Logistics Support Cost (TLSC) for a given set of items identified as high-support-cost targets in the deployment phase. For assistance in drafting this section, the reader is urged to contact the local AQ organization at the product division or the AQML code at AFLC Headquarters. The LSCC checklist references statements which normally are included in the Special Provisions Section (Section J) of the contract. Also, data generated from these tasks should be properly reflected in the LSAR or ILDF to assure continuity of data.
1.5.1 Address the TLSC/MLSC guarantee statement				
1.5.1.1 Define the TLSC/MLSC terms				
1.5.1.2 Define the control LRU TLSC values and target prices				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
1.5.2 Define TLSC model cost elements				
1.5.3 Define MLSC verification test plan and procedures				
1.5.4 Implementation of the LSCC correction clause				
1.5.4.1 Address government verification of corrections				
1.5.4.2 State satisfactory compliance clause				
1.5.5 Define contractor obligations				
1.5.5.1 Contractor representation				
1.5.5.2 Contractor deficiency correction plan				
1.5.5.3 Review and approval of contractor deficiency correction plan				
1.5.5.4 Deficiency correction for government-owned assets				
1.5.5.5 Conditions for retest				
1.5.6 Government obligations				
1.5.6.1 TLSC value adjustments				
1.5.6.2 Proposed corrective action plan approval				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
1.5.6.3 Verification test plan preparation				
1.5.6.4 Verification test performance				
1.5.6.5 Notification of verification test				
1.5.6.6 Computation of MLSC values				
1.5.6.7 Notification of deficiency				
1.5.6.8 Retest requirements				
1.5.6.9 Retest cost negotiations				
1.5.6.10 Retest right continuance				
1.6 Reliability improvement warranty provisions . Determine RIW applicability (see Appendices D and E) . Warranty selection criteria (see Appendix E)		References 8 and 9 in Appendix A ASPR 1-324 ASPR 7-105.7		1. This checklist is applicable to the Special Provisions Section (Section J) of the contract. 2. Data generated from these tasks should be properly reflected in the LSAR or ILDF to assure continuity of data. 3. For specific examples of RIW contractual language, the reader should review the RIW Contractual Guidelines report prepared by ARINC Research for RADC under Contract F30602-74-C-0271. A copy of the report will be available through Defense Logistics Studies Information Exchange in the first quarter of 1976.
1.6.1 Warranty statement				
1.6.2 Contractor repair obligation upon failure to meet warranty				
1.6.3 Exclusions: . Fire, explosion, combat damage, etc.				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
1.6.4 Warranty period . Calendar years, operating hours, risk factors, extensions		DD Form 250		
1.6.5 Unverified failures				
1.6.6 ECP management control	DI-E-3128	TO 00-35D-54 AFR 800-8 AFR 80-30 MIL-STD-480		
1.6.7 Shipping . Determination of who pays				
1.6.8 Warranty pipeline flow . Repair and return . Centralized government supply . Bonded storeroom				
1.6.9 Government obligations				
1.6.10 Warranty data requirements				
1.6.11 Miscellaneous conditions . Warranty labeling & seals . Elapsed time indicators . Lost unit adjustment . Operate hours adjustment . MTBF guarantee . Non-covered failures				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR *INCLUSION IN CONTRACT*	REMARKS
1.6.12 Determine RIW funding assurance				
1.6.13 Define economic escalation clause		ASPR Section 7-106, 7-107		
1.6.14 Provisions to turnover to organic maintenance		AFR 800-4		
1.6.15 Warranty contractual considerations		ASPR 20-301.1(b)		

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
2. ILS Analyses and Procedures				
2.1 Establish LSA plan requirements and SOW inputs	DI-S-6168	AFLCR/AFSCR 800-24 Ch. 3 MIL-STD-1388 MIL-STD-1388-1 MIL-STD-490A DODI 4100.35G	MIL-STD-1388 MIL-STD-1388-1 MIL-STD-490A	
2.1.1 Establish identification of LSA tasks				
2.1.2 Address data reporting procedures and delivery				
2.1.3 Address data review and approval by government				NOTE: The government's review schedule of LSA data must be phased to match the design progression of the system.
2.1.4 Define LSA updating requirements				
2.1.5 Define LSA inputs to LSC model				
2.1.6 Define funding aspects of LSA				See ILS Analysis and Procedures Section of Lessons Learned
2.2 Address LSA Record (LSAR) or Integrated Logistics Data File (ILDF)		AFLCR/AFSCR 800-24 Ch. 3 MIL-STD-1388 MIL-STD-1388-1 MIL-STD-1388-2 DI-UL-69-6	MIL-STD-1388 MIL-STD-1388-1 MIL-STD-1388-2	1. Refer to the A-10 Program Office at SMALC for data system information regarding DI-UL-69-6. 2. The LSAR requires a unique DID based on the elements in MIL-STD-1388-2.
2.2.1 Define LSAR format				
2.2.2 Define LSAR data storage and retrieval procedures				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
2.2.3 Address data ownership				
2.2.4 Define LSAR data summaries delivery schedule				NOTE: Delayed funding for the data delays its delivery perhaps beyond the point where it can be of use.
2.2.5 Define LSAR updating requirements				
2.2.6 Address ORLA requirements	DI-R-3549 DI-S-6169 DI-S-3606 DI-L-6138A	AFLCM/AFSCM 800-4 AFR 66-1 AFR 80-5 AFLCR 375-4 MIL-STD-1388-1 MIL-STD-499A DI-S-3608	MIL-STD-1388-1 MIL-STD-499A	1. The reader should be cautioned that the ORLA requirement can be affected if procurement techniques such as RIW or LSCC are utilized. Do not attempt to draft the ORLA section until the procurement method is established and understood. Also, the ORLA requirements for FSD differ from those required for Production; as the system progresses to the Production phase, the ORLA requirements necessarily become more detailed and the contract must reflect this difference.
2.2.6.1 Define ORLA terms				2. Ensure the Time Line Sheets DID, DI-S-3608, is placed in the contract.
2.2.6.2 State input data source requirements and responsibilities . End item maintenance sheet		DI-S-3608		3. Data generated from these tasks must be properly reflected in the LSAR or ILDF to assure continuity of data.
2.2.6.3 Define ORLA model and requirements				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
2.2.6.4 Define ORLA output requirements and reporting procedures	DI-R-3549			
2.2.6.5 Define ORLA updating requirements				
2.2.6.6 Define ORLA results and LSA or ILDF interface				
2.3 Address supportability testing interface		AFLCR/AFSCR 800-24 Ch. 3 MIL-STD-471A		NOTE: Data generated from these tasks must be properly reflected in the LSAR or ILDF to assure continuity of data.
2.3.1 Address supportability testing plans requirements and procedures during DT&E and OT&E	DI-S-6170 DI-S-3702 DI-S-3706	AFR 80-14 and AFLC/AFSC Supplement 1 to AFR 80-14		
2.3.1.1 Address system/subsystem test data requirements with LSA/LSAR estimates				
2.3.2 Address supportability data collection and reporting procedures	DI-T-3718	MIL-STD-471A	MIL-STD-471A	
2.3.3 Address interface impact of supportability testing on spares, maintenance, technical publications, SE, and training				
2.4 Address Logistic Support Cost (LSC) trade-off analyses NOTE: This section may be used in lieu of LSCC provisions section which is based on LSC costs	DI-S-3606	AFR 800-11 LCC-3 MIL-STD-499A AFSCP 375-5		1. The reader should go to the local AQ(X) and AQML office codes for assistance with the development of this DID.

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
				2. Data generated from these tasks must be reflected in the LSAR or ILDF to assure continuity of data.
2.4.1 Define how the contractor shall use the LSC trade-off analyses results in system program decisions				
2.4.2 Define terms and definitions				
2.4.3 Define input data source requirements and responsibilities				
2.4.4 Define LSC model requirements				
2.4.5 Define LSC output requirements and reporting procedures	DI-S-3606			
2.4.6 Define LSC updating requirements				
2.4.7 Define LSC interface requirements with DTC		DODD 5000.XX, to be issued in the 2nd or 3rd quarter of calendar year 1975		

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
3. Initial Spares/Repair Parts Provisioning				NOTE: Data generated from these tasks must be properly reflected in the LSAR or ILDF to assure continuity of data.
3.1 Address provisioning plan requirements	DI-V-7000 thru 7009 DI-V-3831A DI-V-3817A	AFLCR/AFSCR 800-24 Ch. 4 MIL-STD-1552 MIL-STD-1561 MIL-STD-1388 OMB 22-R0323	MIL-STD-1552 MIL-STD-1561	NOTE: The provisioning data items are actually derived from data contained in the LSAR or ILDF. If LSAR or ILDF is utilized, then minimum, if any, provisioning documentation should be procured.
3.1.1 Address provisioning documentation and data (including interface with LSA or ILDF)		MIL-STD-1561	MIL-STD-1561	
3.1.2 Address provisioning performance schedule (PPS)				NOTE: Spares/repair parts delivery requirements are established in Item 10, Provisioning Requirements Statement, DD Form 1949-2.
3.1.3 Address provisioning conference requirements		DD Form 1949-1 DD Form 1949-2	DD Form 1949-1 DD Form 1949-2	
3.1.4 Address vendors/subcontractors' compliance procedures (DD Forms 1949-1 and 1949-2)		MIL-STD-1561	MIL-STD-1561	
3.1.5 Address contractor provisioning recommendations				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
3.2 Address interim contractor support (ICS) requirements		AFR 800-21 (to be published) PMD AFR 66-14		1. Although ICS is required by AFR 800-21 to be considered for utilization in each new system acquisition, as well as major system modifications, this support concept remains an option and should be included in the Special Provisions Section (Section J) of the contract.
3.2.1 Address the interim contractor support plan				
3.2.1.1 Address turnover to organic support				
3.2.2 Address interim contractor support analysis				
3.2.2.1 Address impact of ICS on total support requirements				
3.2.3 Address ICS trade-off analysis reporting procedures	DI-S-3606			
3.2.4 Address follow-on identification of ICS candidates				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
3.3 Address spares acquisition improvement program (SAIP) . LSA or ILDF interface		AFR 800-XX		1. Refer to Appendix F for more information regarding SAIP. 2. AFR 800-XX will be published in the 4th quarter of CY 1975.
3.3.1 SAIP objectives				
3.3.2 Address SAIP ordering procedures				
3.3.3 Define SAIP price negotiation				
3.3.4 Address configuration management of SAIP items				
3.4 Address phased provisioning requirements (if applicable)		MIL-STD-1517 DODI 4140.19	MIL-STD-1517	

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
4. Support Equipment (SE)				NOTE: Data generated from these tasks must be properly reflected in the LSAR or ILDF to assure continuity of data.
4.1 Establish contractor's SE plan requirements	DI-A-6102	AFLCR/AFSCR 800-24 Ch. 5 AFAD 71-685 AFR 800-12 AFSCR/AFLCR 800-5	AFAD 71-685	NOTE: AFAD 71-685 must be modified to the particular program requirements
4.2 Ensure the system operational concept and the support concept are addressed in the contract		AFLCM 57-16 AFAD 71-685 MIL-STD-499A	AFAD 71-685 MIL-STD-499A	
4.3 Define SE detailed cost-effectiveness trade-off analysis requirements: . Depot-level and intermediate SE requirements . GFE, CFE requirements . Commercial off-the-shelf equipment . Special tools and equipment requirements	DI-E-6120 DI-V-6184 DI-V-6185	AFLCR/AFSCR 800-24 Ch. 5 AFAD 71-685 MIL-STD-499A MIL-STD-196 ASPR 13-101.6 Standardized Technical Information File MIL-HDBK-300 Design HDBK 2-6 Automatic Test Equipment Acquisition Planning Guide MIL-STD-875	MIL-HDBK-300 Design HDBK 2-6 AFAD 71-685 MIL-STD-499A	The Automatic Test Equipment Acquisition Planning Guide may be ordered from SA/ALC/MMD, Kelly AFB, Texas 78241. This guide contains a discussion of the ATE data bank and provides guidance to assist logistics planners in selecting existing ATE to satisfy new testing requirements.
4.3.1 Address SERD report and delivery requirements, including interfaces with the LSA or ILDF	DI-S-6176 DI-S-3596	AFAD 71-685 MIL-STD-499A	AFAD 71-685 MIL-STD-499A	
4.3.2 Address CSEL requirements	DI-V-6183			1. Refer to the LSAR or ILDF for CSEL data inputs.
4.3.3 Address PSEL requirements	DI-V-6186			

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
4.4 Address SE status reports	DI-F-6127 DI-S-6177	AFLCM 57-16 AFAD 71-685 MIL-HDBK-300D	AFAD 71-685 MIL-HDBK-300D	1. MIL-HDBK-300D may not be up to date for current requirements.
4.4.1 Address SE delivery schedule and acceptance procedures for DT&E and OT&E	DI-E-6121 DI-P-6165			

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
5. Computer Resources in Systems Requirements (CRIS)	DI-E-3121 DI-E-3122	AFLCR/AFSCR 800-24 Ch. 3 AFR 800-14, Volumes I & II MIL-STD-483 MIL-STD-490 AFSCM/AFLCM 375-7 MIL-S-83490 AFR 65-3	MIL-STD-483 MIL-STD-490	1. The contract must address computer programming requirements for support of operational computing systems, support systems and support of support systems. 2. Data generated from these tasks must be properly reflected in the LSAR or ILDF to assure continuity of data.
5.1 Define computer resources in systems requirements	DI-E-3119A DI-E-3120A	SAMSO Exhibit 73-3 MIL-STD-876 MIL-STD-483 MIL-STD-490	MIL-STD-876 MIL-STD-483 MIL-STD-490	
5.2 Require contractor to determine the identification and availability of existing government-owned operating systems, languages, data bases and storage and retrieval conventions.				
5.3 State CRIS configuration management and verification, validation and certification techniques				
5.4 State CRIS data rights requirements		ASPR 9-602	ASPR 9-602	

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
6. Packaging/Handling/Storage/ Transportability/Transportation				NOTE: Data generated from these tasks must be properly reflected in the LSAR or ILDF to assure continuity of data.
6.1 Address general considerations . LSA or ILDF interface		MIL-P-9024G	MIL-P-9024G	
6.1.1 Address packaging definition and policies		MIL-P-9024G MIL-STD-794	MIL-P-9024G MIL-STD-794	
6.1.2 Address consolidation of packaging, transportability and transportation requirements				
6.1.3 Address administration of packaging tasks				
6.2 State preparation for delivery requirements	DI-L-6147A DI-L-3305	AFLCR/AFSCR 800-24 Ch. 8 MIL-P-9024 F MIL-STD-726 MIL-STD-794 C MIL-STD-834 AFLC Form 872 AFP 800-7 MIL-A-25175	MIL-P-9024F MIL-STD-794 C AFLC Form 872 AFR 80-18 MIL-A-25175	
6.3 Address packing of shipments		MIL-STD-129 ASPR Contract Clause 7-104.68	MIL-STD-129 ASPR Contract Clause 7-104.68	
6.3.1 State dangerous/hazardous material constraints		AFM 71.4 AFM 71.5 CFR 14, 46, 49	AFM 71.4 CFR 14, 46, 49	NOTE: AFM 71.4 is being updated and revised.
6.4 Address packaging and design criteria . Reusable containers		AFSC Design H/B 1-2 AFM 71-9	AFSC Design H/B 1-2 AFM 71-9	

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
6.4.1 Address special design protective equipment requirements		MIL-P-9024	MIL-P-9024	NOTE: Special design protective equipment is not to be confused with special tools, jigs, or fixtures.
6.4.2 Address transportation packaging order requirements		MIL-STD-794	MIL-STD-794	
6.4.3 Address packaging design approval				
6.5 Address packaging data requirements	DI-L-6147	AFLCR/AFSCR 800-24 Ch. 8 MIL-STD-834 MIL-STD-794 MIL-STD-490 MIL-P-9024G MIL-P-116 MIL-STD-129	MIL-STD-834 MIL-STD-794 MIL-STD-490 MIL-P-9024G MIL-P-116 MIL-STD-129	
6.6 Address handling considerations	DI-A-3014	AFLCR/AFSCR 800-24 Ch. 8		
6.6.1 Special handling requirements				
6.7 Address storage considerations		AFLCR/AFSCR 800-24 Ch. 8		
6.7.1 Address storage facilities classification requirements				
6.8 Establish transportability design considerations		AFLCR/AFSCR 800-24 Ch. 8 MIL-P-9024 AFSC Design H/B 1-2	MIL-P-9024 AFSC Design H/B 1-2	
6.8.1 Define transportability evaluation plan requirements	DI-L-6148A	MIL-P-9024G	MIL-P-9024G	
6.8.2 Address design criteria				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
6.8.3 State specialized materials handling requirements				
6.8.4 Address non-standard transportability problems	DI-L-3327A	AFR 80-18		
6.9 Address transportation plan requirements	DI-L-6149A	AFLCR/AFSCR 800-24 Ch. 8 AFR 75-15		
6.9.1 Address contractor notification of unusual transportation requirements		AFM 75-1 AFM 75-2 DoD 4500.32-R Official Air Transport Restricted Article Tariff No. 6D on shipment by commercial air Agent R.M. Graziano's Water Carrier Tariff No.29 (Dangerous Material Moved by Surface)	DoD 4500.32-R Official Air Transport Restricted Article Tariff No. 6D on shipment by commercial air Agent R.M. Graziano's Water Carrier Tariff No. 29 (Dangerous Material Moved by Surface)	
6.9.2 Address contractor technical representation requirements				
6.9.3 Address special transportation equipment requirements				
6.9.4 Address off-site loading and movement of goods requirements				
6.9.5 State loss or damage clause				
6.9.6 Address passenger and/or cargo movement requirements		AFR 75-15	AFR 75-15	

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
6.9.7 Address classified/sensitive shipments requirements		Industrial Security Manual AFM 75-1	Industrial Security Manual AFM 75-1	
6.9.8 Address consolidation of shipments requirements				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
7. Preoperational Support				1. The extent of ILS requirements for preoperational support will be a function of how comprehensive and complex the DT&E and OT&E test phases are planned. Before attempting to develop this section for the SOW, it is necessary that the DT&E and IOT&E plans be thoroughly reviewed and understood in order to realize a compatible plan for preoperational support. 2. Data generated from these tasks must be properly reflected in the LSAR or ILDF to assure continuity of data.
7.1 Address preoperational support guidance conference requirements		AFLCR/AFSCR 800-24 Ch. 10 AFSC ASPR Supplement p. 7-104.100 AFR 80-14		NOTE: A SE Guidance Conference is usually applicable to production contracts whereas planning for preoperational support must begin prior to DT&E.
7.1.1 Address contractor participation in base activation plan (if applicable)		Program RFP		
7.1.2 Address GFP identification requirements		ASPR 13-101.1	ASPR 13-101.1	
7.2 Address preoperational support plan, including the maintenance plan, SE plan, training programs, spares/repair parts plans, etc.	DI-L-3302 DI-L-6143	AFLCR/AFSCR 800-24 Ch. 10		

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
7.2.1 Address preoperational spares/ repair parts provisioning and peculiar SE and training requirements				
7.2.2 Address recommended range and level of spares/repair parts requirements	DI-V-3832			
7.2.2.1 Spares/repair parts pre-screening requirements . LSA or ILDF interface	DI-V-3831A	DODI 4130.6 AFR 72-3 DoD 4100.38M		
7.2.2.2 Spares/repair parts revisions				
7.2.3 Milstrip requisitioning procedures		ASPR Appendix H	ASPR Appendix H	
7.2.4 Address spares/repair parts delivery and deployment schedule				
7.2.4.1 Address design change impact on spares and repair parts delivery		DD Form 250 DD Form 1149	DD Form 250 DD Form 1149	
7.2.5 State spares/repair parts order acceptance procedures				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
8. Maintenance Management				Data generated from these tasks must be properly reflected in the LSAR or ILDF to assure continuity of data.
8.1 Address general maintenance policy		AFLCR/AFSCR 800-24 Ch. 12 MIL-STD-490 TO 00-35D-54 TO 00-5-15 AFM 66-1	MIL-STD-490	
8.1.1 Address non-stock-numbered repair policy		AFR 66-14 AFLCR 66-17		
8.1.2 Address stock-numbered repair policy				
8.1.3 Address item condemnation procedures				
8.2 Address repair, modification and procedures for overhaul		AFLCR/AFSCR 800-24 Ch. 12 AFR 66-14 MIL-STD-490 AFR 57-4	MIL-STD-490	
8.2.1 Address bench check procedures				
8.2.2 Address time-controlled component repair				
8.2.3 Address TCTO compliance requirements		TO 00-5-15 MIL-T-38804	MIL-T-38804	
8.2.4 Address item overhaul instructions				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
8.3 Address inspection, marking and packaging requirements		AFLCR/AFSCR 800-24 Ch. 12		
8.3.1 State government inspection rights				
8.4 Address maintenance-associated requirements		AFLCR/AFSCR 800-24 Ch. 12 MIL-STD-490	MIL-STD-490	
8.4.1 Address Contractor Engineering & Technical Services (CETS) plan requirements	DI-A-3015 DI-A-6101	AFLCR/AFSCR 800-24 Ch. 2, 11 DODD 1130.2 DODI 1130.2 AFM 66-18 AFSC Supplement 1		
8.4.1.1 State CETS plan requirements				
8.4.1.2 State CETS plan approval				
8.4.2 Address equipment maintenance and historical records requirements	DI-M-3418A	TO 00-20-1 TO 00-20-4 TO 00-20-5 TO 00-20-6 TO 00-20-7 TO 00-35D-780		
8.4.3 Address material deficiency reports	DI-R-3536A	AFM 66-1 AFR 66-30 MIL-STD-470 MIL-STD-785 TO 00-35D-54	MIL-STD-470 MIL-STD-785	

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
8.4.4 Address maintenance action documentation	DI-R-3537	MIL-STD-280 MIL-STD-471 MIL-STD-721 MIL-STD-756 MIL-STD-785 MIL-M-38717 MIL-M-38768 MIL-M-38769	MIL-STD-471 MIL-STD-721 MIL-STD-756 MIL-STD-785 MIL-M-38717 MIL-M-38768 MIL-M-38769	
8.4.5 Address technical order equipment Work Unit Code classification (where applicable)	DI-M-3407A	AFAD 71-531 AFSC Forms 258/258-4		
8.4.6 State equipment classification requirements		AFSC Forms 258/258-4		

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
9. Travel				
9.1 Address domestic travel requirements				
9.1.1 Address mode of transportation				
9.1.2 Address domestic passenger travel				
9.1.3 State financial responsibilities				
9.1.4 Address travel orders				
9.2 Address overseas travel requirements				
9.2.1 Address mode of transportation				
9.2.2 Address domestic passenger travel				
9.2.3 Address overseas passenger travel				
9.2.4 State financial responsibilities				
9.2.5 Address government approvals				
9.2.6 Address theatre clearance lead times				
9.2.7 Address travel orders				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
10. Reliability (R) and Maintainability (M) interface NOTE: R and M are not ILS functions but it is important to ensure that the R and M interface with ILS data requirements (MIL-STD-1388 LSA) are treated in the contract. Therefore, it is necessary to ensure the following are addressed:		AFR 800-8 AFR 80-5		1. Data generated from these tasks must be properly reflected in the LSAR or ILDF to assure continuity of data. 2. The math models utilized by the contractor for predicting R and M for the system should be made compatible with the existing AFLC math models for subsequent use in the support environment.
10.1 Procedures for dissemination of current R estimates and allocations		MIL-STD-756A MIL-STD-756B MIL-STD-721B MIL-STD-785A		
10.2 Definition of R terms		MIL-STD-721 MIL-STD-280 MIL-STD-781B		
10.3 Program and design reviews		MIL-STD-1521		
10.4 R demonstration plan		MIL-STD-781 MIL-STD-280 MIL-STD-785A MIL-STD-757	MIL-STD-280	
10.5 R trade-off analyses impacting on support analyses		AFR 80-5		
10.6 Impact of failure mode and effects analysis on support considerations				

CHECKLIST FOR DATA/TASK ELEMENTS
TO BE CONSIDERED FOR INCLUSION IN CONTRACT

DATA/TASK CONTRACT ELEMENT	DID REQUIRED	REVIEW REFERENCE	REFERENCE FOR INCLUSION IN CONTRACT	REMARKS
10.7 Defective or inadequate parts/ specification report				
10.8 Preferred parts selection list				
10.9 Failure data collection, analysis and corrective actions		TO 0020-2 AFM 66-1	AFM 66-1	
10.10 Procedure for dissemination of current M estimates and allocations		AFSC Design Handbook 1-9		
10.11 Definition of M terms		MIL-HDBK-472 AFSCM/AFLCM 800-4 MIL-STD-721 MIL-STD-280	 MIL-STD-721 MIL-STD-280	
10.12 Program and design reviews		MIL-STD-1521		
10.13 M demonstration plan		MIL-STD-471 MIL-STD-470 MIL-STD-788		
10.13.1 M demonstration techniques and procedures		MIL-HDBK-472		
10.14 M trade-off analyses impacting on support analyses				
10.15 M data collection, analysis and corrective action system		AFM 66-1		
10.16 Corrective and preventive maintenance				

SAMPLE ILS CONTRACTUAL STATEMENTS

This section presents sample ILS contractual statements for each of the data/task contract elements contained in the preceding checklist. These statements may be used verbatim in the Statement of Work or the Special Provisions Section of the contract as applicable. Each sample contractual statement is numbered to correspond to the data/task contract element of the checklist. There are certain tasks (e.g., the tasks that have an impact on ILS, such as R and M) for which sample ILS contractual statements have not been provided. The responsibility for writing these statements in the contract lies with other organizations, such as engineering. From an ILS standpoint, however, the substance of the contractual language for these tasks has an important impact on the logistics areas of interest. Accordingly, the paragraphs for these tasks describe those features which should be addressed in the contract to ensure adequate coverage of ILS considerations.

The sample ILS contractual statements are presented on the following pages. The numbering system used corresponds exactly with that used in the preceding checklist of data/task contract elements. The contractual statements are grouped according to the ten checklist elements, and the discussion of each element is started on a new page.

1. INTEGRATED LOGISTICS SUPPORT MANAGEMENT

1.1 General Requirements

The contractor shall assure that ILS management is systematically planned, implemented, and managed by integrating the following logistics elements into the system design to ensure achieving the greatest possible support readiness and support cost-effectiveness within mission requirements:

- ILS Management
- ILS Analysis and Procedures
- Initial Spares/Repair Parts Provisioning
- Support Equipment
- Packaging/Handling/Storage/Transportability/Transportation
- Preoperational Support
- Maintenance Planning
- Travel
- Maintainability and Reliability Interface

1.1.1 Program Logistics Policy

The contractor shall establish and maintain an integrated logistics support program to determine, by conducting trade-off analyses, the most practical balance between the total system effectiveness and cost, schedule, performance, and system support. The most practical balance shall be achieved by the contractor's plan for considering logistics during the systems engineering and design process.

1.1.2 Government ILS Responsibilities

The government shall provide the contractor with necessary changes to the ILS planning data.

1.1.3 Contractor ILS Responsibilities

The contractor shall designate a primary member to act as the single focal point for all contractor responsibilities related to ILS requirements. The contractor shall provide his name, position, address, and telephone number, and the name and telephone number of his alternate ___ days following the date of the contract.

1.2 ILS Role in System Acquisition

The role of ILS is to integrate the various logistic disciplines and engineering disciplines for continuous assessment of the impact of

- Packaging/Handling/Storage/Transportability/Transportation Program
- Travel Program
- Support Equipment Program
- Computer System Requirements Program

(This statement in particular must be tailored to the peculiarities of the program.)

1.3.2 ILS Management Interfaces

The following paragraphs address elements that are not logistic elements but interface closely with logistics management. Contractual provisions for these elements are normally developed by other activities. The statement of work, therefore, should be reviewed to assure that the following interface elements are addressed.

1.3.2.1 DTC Interfaces

The SOW shall include requirements for the contractor to enter all changes affecting reliability and maintainability into the LSA and LSC models. The output of these models shall be used to evaluate DTC milestones, verify DTC cost and performance goals, and monitor related impact on support costs (if applicable).

1.3.2.2 Technical Data Interfaces

The data-management section of the SOW shall be reviewed to assure that technical data and their delivery will be consistent with the logistics requirements identified in the ILS Analysis and Procedures, R and M Interfaces, Training Interfaces, Spares/Repair Parts Provisioning, Engineering and Reprocurement Data, Technical Drawings (Types I, II, or III), and Support Equipment sections of this SOW. Technical Data for Computer Resources shall be addressed in reference to AFR 800-14.

1.3.2.3 Technical Manual Interfaces

The Technical Orders and Publications section of the SOW shall be reviewed for consistency with maintenance, support equipment, packaging/handling/storage/transportability/transportation, and spares procurement requirements. The SOW shall also be reviewed to ensure that the contract contains a Technical Manual Verification Plan. TM verification should be conducted in accordance with TO-00-5-1.

1.3.2.4 Facilities Interfaces

The Facilities section of the SOW should be evaluated by reviewing proposed facility plans for consistency with the system maintenance/

support concept, which shall be outlined in the Annex to the contract. The facility plans shall include provisions to determine the impact of SE design constraints on the facilities requirements. Computer Resource facility requirements outlined in the CRISP must be addressed.

1.3.2.5 Training Program Interfaces

The Training Equipment Program section of the SOW shall be reviewed for logistics impact on support equipment, packaging/handling/transportability/transportation, spares provisioning, pre-operational support, and technical-manual requirements.

1.3.2.6 Test Interfaces

The SOW shall be reviewed to assure that DT&E and OT&E provisions include requirements for establishing and demonstrating logistics supportability criteria. The logistics data to be obtained from these tests shall be inserted into the LSA and reported in the LSAR.

1.3.2.7 ECP Interfaces

The SOW provisions shall include requirements that all ECPs be evaluated to determine their impact on the maintenance concept and support costs, as well as instructions on how to document the results for each ECP submitted. The evaluation should be performed by using the LSA and LSC models. The contractor shall be given proper instructions on how to apply the results. (The PMD and PMP should provide the direction for developing the instructions.) All logistics and engineering-critical items and computer programs must be designated configuration items (CIs) and managed accordingly. All ECPs shall be reviewed for impact on training equipment to assure that training equipment is always configured the same as the system itself.

1.3.2.8 C/SCSC Interfaces

The SOW shall be reviewed to ensure that the Cost/Schedule Control Systems Criteria (C/SCSC) for ILS tasks are addressed properly. C/SCSC shall require the contractor to meet contract objectives, assign workloads to specifically identified logistics elements, establish internal schedules and budgets, and periodically compare actual costs and schedule performance against the planned budgets and schedules in accordance with the applicable DID contained in the CDRL, DI-F-6000A.

1.3.2.9 LSA or ILDF Interfaces

The SOW should be reviewed to assure that the LSA or ILDF is delivered to the government early enough to permit processing SAIP and long-lead items a "production lead time" prior to need. The SOW

should also be reviewed to assure that LSA or ILDF data entry is compatible, from a schedule standpoint, with the other aspects of ILS.

1.4 Contractor Management and Control Requirements

The contractor shall institute procedures to ensure that the subcontractor's and vendors' products have incorporated the necessary requirements of ILS to assure that their effect on the system/equipment is consistent with the program supportability goals. These procedures shall contain provisions by which the subcontractors' and vendors' activities that affect system supportability are monitored regularly by the contractor.

1.5 Logistics Supportability Cost Commitment (LSCC) Provisions

(The reader should refer to Appendix D before proceeding. Appendix D presents a comparison table of risk factors encountered in employing various logistics support cost-control methods in contracts.)

1.5.1 The TLSC/MLSC Guarantee Statement

Notwithstanding government inspection and acceptance of supplies and services furnished under this contract or any provision of the contract concerning the conclusiveness thereof, the contractor guarantees that the measured logistics support cost (MLSC) will not exceed the target logistics support cost (TLSC) for LRUs (see paragraph 1.5.1.2) when such measured values are obtained in accordance with the test program described in the following paragraphs.

1.5.1.1 TLSC/MLSC Terms and Definitions

(The definitions will be peculiar to the type of system being procured and the TLSC model being utilized. Once established, these terms should be defined in this paragraph or referenced in this paragraph to an attachment to the contract.)

1.5.1.2 Control LRU TLSC Values and Target Prices

TLSC values, together with target prices contained in the basic contract price for LSCC for control LRUs are stated as follows (shown for example only):

WUC	Noun	TLSC, FY 1975 (Dollars)	LSCC Target Price (Dollars)
74DAO	Navigation Unit	5,566,617	963,059
14ABO	Flight Control Computer	3,765,582	1,620,109
74EAO	Radar/E-O Display	3,291,877	743,823
74BAO	Heads-Up Display	2,892,027	778,332
74ECO	Digital Scan Converter	2,786,582	1,232,577
74CAO	Fire Control Computer	1,808,496	991,226
74BCO	HUD Electronics	1,265,905	458,507
74EBO	Radar/E-O Electronics	1,248,004	133,436

1.5.2 TLSC Model Cost Elements

The TLSC values stated in paragraph 1.5.1.2, above, are computed from the following (shown for example only):

$$TLSC = \sum_{i=1}^{n} C_{1_i} + C_{2_i} + C_{3_i} + C_{4_i}$$

where

C_1 = initial and replacement spares costs (LSCC LRUs)

C_2 = on-equipment maintenance costs (LSCC LRUs)

C_3 = off-equipment maintenance costs (LSCC LRUs)

C_4 = support equipment costs (LSCC LRUs)

n = number of LSCC LRU types

Attachment ___ to this contract provides the complete derivation of the cost elements.
(Note: The LSC cost elements, where possible, should be extracted from the system unique Life-Cycle-Cost Model.)

1.5.3 MLSC Verification Test Plan and Procedures

A verification test of ____ operating hours shall begin ___ months after IOC. The government will prepare a detailed test plan and data-collection procedures for the verification test to assure that all of

the data elements necessary for quantification of MLSC are accurately recorded. The MLSC will be computed by using the formula presented in paragraph 1.5.2, above.

1.5.4 Implementation of the Correction Clause

In the event the MLSC exceeds the TLSC by more than ___ percent, the contractor shall institute a correction-of-deficiencies (COD) course of action that will bring the logistics cost within the prescribed range. The contractor's proposed course of action shall be submitted to the government for review and approval prior to implementation.

1.5.4.1 Government Verification of Corrections

Following the correction of deficiencies, the government intends to verify, through such additional testing as it may deem necessary, that the TLSC has been achieved for the control LRUs selected for LSCC coverage.

1.5.4.2 Satisfactory Compliance

The contractor commitment under the provisions of this agreement shall continue until compliance with the prescribed range has been demonstrated satisfactorily.

1.5.5 Contractor Obligations

1.5.5.1 Contractor Representation

The contractor shall supply representatives during the verification test to verify the authenticity of the observed data.

1.5.5.2 Contractor Deficiency-Correction Plan

In the event MLSC exceeds the prescribed range, the contractor shall investigate and formulate a corrective-action plan (including schedule), which, if implemented, will bring logistics costs within the prescribed range. The plan shall contain sufficient data to justify the adequacy of proposed actions.

1.5.5.3 Review and Approval of Contractor Deficiency Plan

The contractor shall submit his proposed corrective-action plan, including schedule, to the government for review and approval. The contractor shall, after notification of such approval, implement the plan as specified.

1.5.5.4 Government-Owned Assets

The contractor shall incorporate, at no cost to the government, all deficiency corrections in all government-owned assets, excluding spares delivered in support of preoperational end items, by both retrofit of delivered assets and production incorporation. The assets to which this requirement applies include, but are not limited to, LRUs, AGE, software, training equipment, and technical data.

1.5.5.5 Conditions for Retest

If the government determines that retest is necessary, the contractor shall provide representatives at the retest to verify the authenticity of the retest data. Steps 1.5.5.2, 1.5.5.3, and 1.5.5.4 shall be repeated in the event that the retest data show that the MLSC fails to meet the prescribed level.

1.5.6 Government Obligations

1.5.6.1 TLSC Value Adjustments

Adjustments to the TLSC values shall be made by the government for the following reasons:

- Approved ECPs in conjunction with individual renegotiated values resulting from the engineering change
- Changes in the anticipated force structure or activity levels to be supported
- Inflation-factor adjustments, as outlined in the basic contract, to acquisition-cost elements
- Changes to factors defining the maintenance concept resulting from a government-approved repair-level analysis conducted during full-scale development
- Adjustments due to subsequent identification of certain control LRUs designated as Government Furnished Aeronautical Equipment (GFAE) for production aircraft
- Change or addition to the mission placing greater or less demand on equipment

The government will not renegotiate the values for MTBF. Further, any changes to organizational, intermediate, or depot-level man-hour values shall retain the same gross weighted man-hour cost value (man-hours expended times labor rate).

1.5.6.2 Approval of Proposed Corrective Plan

The government agrees to notify the contractor of its approval/disapproval decision within thirty (30) days of receipt of the contractor's proposed corrective-action plan.

1.5.6.3 Preparation of Verification Test Plan

The government will prepare a detailed test plan to be implemented during the ___-hour verification test. The government agrees to review the test plan with the contractor prior to plan implementation.

1.5.6.4 Verification Test Performance

The government will perform the verification test using the first operational squadron.

1.5.6.5 Notification of Verification Test

The government will notify the contractor of its intent to commence the verification test at least ___ days prior to the commencement of such test.

1.5.6.6 MLSC Computation

The government will compute MLSC on the basis of values measured during the verification test.

1.5.6.7 Notification of Deficiency

The government will notify the contractor of the existence of a deficiency should the MLSC again fail to meet the prescribed range.

1.5.6.8 Retest Requirements

The government will determine the nature and extent of any retest it deems necessary to validate the adequacy of deficiency corrections.

1.5.6.9 Retest Cost Negotiation

In the event that the government elects to require retest, the price of any portion of the retest that is directed by the government to be performed in the contractor's facility will be separately negotiated with the contractor.

1.5.6.10 Retest Rights Continuation

The government may elect to continue the retest until compliance with the prescribed range is achieved.

1.6 Reliability Improvement Warranty (RIW) Interfaces

(NOTE: A standard set of specific RIW terms would be voluminous and will not be attempted here. It is more valuable for this effort to present guidelines for preparation of RIW provisions rather than the provisions themselves. Specific examples of RIW provisions are contained in References 10, 11, 12, and 13 in Appendix A. The following narrative outlines the basic principles concerning the major ramifications and alternatives expected in preparing RIW provisions. The reader is urged to review Appendixes D and E, as well as References 10, 11, 12, and 13 in Appendix A before drafting specific SOW terms.)

1.6.1 Warranty Statement

This is the basic provision of the RIW; it states that the contractor warrants that the equipment furnished under the contract will be free from defects in design, material, and workmanship, and will operate in its intended environment in accordance with contractual requirements for the period specified. The major distinction between this statement and the usual one-year warranty or consumer-type warranty is that the warranty period is long enough that it is probable that each delivered equipment will fail one or more times during the warranty period. Therefore, the seller prices the warranty to cover his expected repair costs, which, especially in a competitive procurement, must be consistent with stated or promised reliability levels.

1.6.2 Contractor Repair Obligation Upon Failure to Meet Warranty

Equipment other than automatic test equipment that fails during the warranty period is returned by the government to a designated contractor repair facility, where the contractor is obligated to repair or replace the failed equipment at his expense. The contract may include a repair test procedure that the contractor must apply to a repaired equipment to verify the repair to the DCAS or government quality-assurance representative upon request. Since experience has proven it impractical, automatic test equipment should not be returned to the contractor for repair; rather, the contractor should perform repairs on site to prevent making the system inoperable for long periods and thereby degrading system effectiveness.

1.6.3 Exclusions

Certain failures that are not the fault of the contractor and are completely beyond his control are normally excluded from warranty

coverage. Examples are failures caused by fire, explosion, submersion, combat damage, and aircraft crash. Two very difficult areas are mistreatment and system-induced failures (e.g., power transients). In many cases the cause of the failure is not clear-cut. If a contractor is experiencing more repair actions than he anticipated, he will naturally look to broad exclusion terms to reduce profit erosion. Such broad exclusions create the possibility of continual arguments and litigation on warranty coverage. It is therefore recommended that exclusions be limited.

One approach used with respect to mistreatment was to agree that it had occurred only if there was obvious external physical damage or evidence of tampering. The terms of the RIW should include the requirement for the ACO visually to inspect for evidence of mistreatment all failed items returned to the contractor immediately upon receipt in the contractor's facility.

Exclusions for system-induced failures or abnormal environmental stress are not recommended, since it is extremely difficult to prove that such conditions existed. In addition to the advantages of minimizing disputes, this type of broad coverage forces the contractor to consider environmental extremes in his design and equipment-modification strategy. For military warranty, the contractor is relieved of liability for special, consequential, or incidental damages.

1.6.4 Warranty Period

The period of coverage can be stated in calendar years, operating hours, or both. The use of a calendar period is best from an administrative viewpoint and for planning for organic maintenance. The following factors have an important bearing on the period of coverage:

- The period should be long enough to provide strong contractor incentive for achieving and maintaining acceptable reliability. At a minimum, the period should be of such duration that at least several failures of each delivered equipment would be expected.
- On a per-year basis, warranty costs decrease as the warranty period increases since nonrecurring costs are amortized over a longer period and contractor "learning" takes place.
- Too long a warranty period (say, more than four years) may involve large uncertainties, forcing the bidder to "price in" a large risk factor.
- By providing for extensions to the initial warranty period (these can take the form of follow-on service contracts funded with O&M appropriations), both the government and the contractor can extend the warranty, if this is considered beneficial, at a price based on initial performance.

If a calendar date is selected, it is recommended that the warranty begin on the date the government accepts the system by signing the DD Form 250, Material Receiving Report.

1.6.5 Unverified Failures

A certain percentage of returned units will not exhibit any failure when tested by the contractor. However, the contractor incurs costs in processing such units. Paying the contractor for processing each such unverified failure does not provide any incentive for him to minimize such occurrences through his design, BITE, maintenance manuals, and training procedures. On the other hand, it is probably unfair to have the contractor absorb all such costs. A compromise is to reimburse the contractor for all such returns which exceed a stated percentage within a reporting period. Values as high as 50 percent have been suggested for avionics. The contractor can use such a rate as a bound for pricing. If he feels that the combination of his design, BITE, training, and manuals will lead to a lower percentage, he may choose a lower rate upon which to price for competitive reasons. In any case, there is continued incentive for the contractor to try to minimize the return of good items.

1.6.6 ECP Management Control

By directly observing all field failures and being responsible for repair, the contractor can quickly identify failure patterns and institute appropriate corrective action through ECPs which, by the terms of the warranty, are introduced at no cost to the government. Class I ECPs will generally follow normal MIL-STD-480 procedures necessary for configuration control but, because of the no-cost feature, should be expeditiously processed. Changes not affecting form, fit, survivability, vulnerability, function, and parts can be immediately introduced, with proper notification to the resident government representative. To assure a standard configuration at warranty expiration, the contractor should be required to incorporate all approved ECPs into returned units and to provide modification kits for the remaining unmodified units. If the warranty period is long enough to result in multiple returns of each unit, the number of unmodified units at warranty expiration will probably be small. If the warranty period is not this long, it may be advisable to negotiate for modification kits at warranty expiration so as not to discourage the introduction of ECPs.

1.6.7 Shipping

If the expense of shipping warranted equipment is small compared with the cost of repair, it is probably best for the government to bear all such shipping costs. Although this might appear to be contrary to the spirit of the RIW, it probably will be less costly to the government than if the contractor has to ship units directly to

using activities. A contractor who has to pay shipping costs (one way or both ways) would have to estimate where the sets would be deployed, and quite likely would be conservative in his own favor in estimating the warranty price. Also, if some of the population is deployed overseas, customs regulations would increase pipeline time, thereby increasing spares requirements. If equipment is shipped through a Government Bill of Lading (GBL), a shipping discount is generally received and customs delays are reduced or eliminated. However, if the contractor is required to ship repaired units to a known central facility, or if shipping costs represent a significant percentage of total repair costs, it may be advisable to require the contractor to pay for shipping repaired units back to the government in order to maximize the reliability-improvement incentive.

1.6.8 Warranty Pipeline Flow

There are several alternatives for controlling the flow of warranted units to and from the contractor:

- Repair and Return. Failed units are sent directly to the contractor. Upon repair, the unit is sent directly back to the using activity.
- Central Government Supply. Failed units are sent directly to the contractor. Repaired units are then sent to a government facility that performs normal supply functions for using activities.
- Bonded Storeroom. The contractor maintains a bonded storeroom for storage of repaired units. Upon failure of a unit at a base, the government notifies the contractor, who is required to ship a replacement from the storeroom within a specified period (e.g., one working day). The failed unit, meanwhile, is shipped to the contractor for repair.

Repair and return is the simplest of the three alternatives. However, it provides for minimal control and probably results in the greatest number of spares because of total pipeline time. A central government supply point provides the most control and is closest to organic maintenance, with the contractor repair facility acting in the capacity of a government repair depot. The use of a contractor bonded storeroom is probably the most efficient of the three alternatives.

Each of the alternatives has an advantage, the choice depending on how the factors of simplicity, control, and economy are to be weighted. Whichever approach is adopted, it is recommended that a turnaround-time requirement for in-plant repair be included. This requirement obligates the contractor to process returned units (dock to dock) within a specified maximum or average number of days. This is especially important where units are being shipped under warranty

(as opposed to modules under organic maintenance), for then spares requirements become a significant cost factor. In order for warranty to be economically feasible, control of pipeline time is crucial.

For noncomplex avionics, such as VOR/ILS or TACAN equipment, an average of 15 days or a maximum of 20 days has been found to be a reasonable requirement. The provision for turnaround time should include associated terms for failure to meet stated turnaround-time values, such as a monetary liquidated-damage assessment or a requirement for the contractor to provide loaner spares in accordance with a stipulated formula. A provision for excusable delays for events beyond contractor control is normally included.

1.6.9 Government Obligations

Major government obligations under a warranty procurement are as follows:

- Test all suspected failures on applicable test sets prior to return to the contractor
- Utilize approved shipping containers
- Furnish failure-circumstance data
- Reduce build-up at the using activities

Meeting these obligations provides benefits to both the government and the contractor and should not present any undue difficulties for military maintenance personnel.

1.6.10 Warranty Data Requirements

The contractor should be required to maintain records and issue periodic reports necessary for assessing the effectiveness of the RIW, negotiating extensions, and making necessary contract-price adjustments. Specific records to be maintained for each returned unit include the following:

- Date received by contractor
- Serial number
- ETI readings (if applicable)
- Condition of unit
- Failure mode
- Probable failure cause
- Action taken for repair
- Man-hours expended by labor category

- Parts and material usage
- Test results
- Date stored or shipped

1.6.11 Miscellaneous

A number of other terms and conditions might be included in an RIW:

- Warranty Labeling and Seals. The contractor should be required to install appropriate labeling and seals to indicate warranty coverage and minimize unauthorized tampering.
- Elapsed Time Indicators (ETI). If operate hours are the basis for warranty coverage, a requirement for ETIs should be included. Failure of the ETI should be considered a failure of the item under warranty.
- Lost-Unit Adjustment. A provision for adjusting the contract price for units lost through such events as aircraft crash might be advisable for expensive units.
- Operate-Hour Adjustment. If warranty coverage is on a calendar basis, provisions should be made for adjusting the warranty price for deviations from the stipulated operate-hour factor used for pricing. Procedures for estimating total operate hours from ETI readings of returned units have been established.
- MTBF Guarantee. This major provision, pioneered by the airlines, requires the contractor to guarantee the equipment MTBF experienced in the operating environment. Failure to meet a guaranteed level requires the contractor to institute corrective action and provide loaner spares until the MTBF improves.
- Noncovered Failures. Since the government may not have a depot repair facility, provision for contractor repair of all returns is required, including those failures not covered under the warranty until a depot repair facility is developed. Such provisions can be made through a separate contract or through equitable adjustment in contract price for each such return.

1.6.12 RIW Funding

Funding for warranty services is an open question at this time. An opinion that initial warranties should be funded with production money has been stated by some government comptroller offices, but divergent opinions have been expressed by other government offices to the effect than an RIW falls under the Service Contract Act and therefore must be funded through O&M or industrial-type funds. Since O&M

funds can be appropriated only on an annual basis, such a decision can seriously hamper a warranty procurement since there is no assurance of obtaining the money to pay for such services in the future. However, for a recent TACAN RIW procurement, a memorandum from the Air Force General Counsel to the Air Force Director of Procurement stated that the RIW should be funded from the procurement appropriation and that at the time of the contract award the entire warranty period must be funded concurrent with the production contract award. It is hoped that this question will be resolved satisfactorily in the near future.

1.6.13 Economic Escalation

Since warranty is a long-term commitment, the contractor should be relieved of the uncertainties arising from economic fluctuations in the economy. This can be accomplished by covering the warranty with the economic escalation clause of the contract or by having the RIW bid in "then year" dollars, perhaps with adjustment for abnormal escalation.

1.6.14 Turnover to Organic Support

In order to permit turnover to organic maintenance at the expiration of the warranty, consideration must be given to future purchase of test equipment, data, and training associated with organic maintenance that would not be required while the RIW was in force. If the procurement is competitive, it is advantageous to have these elements as fixed-price options, the prices to be valid for a period covering the warranty, so that the government can purchase such items as necessary for turnover to organic maintenance. If one of the bases for contract award is total life-cycle cost, the competitive factor will tend to minimize turnover costs for the fixed-price options. The contract should also specify the responsibilities for controlling the configuration of the option items before the system is turned over to organic maintenance.

1.6.15 Warranty Contractual Considerations

A fixed price for the RIW coverage should be agreed upon by the government and contractor during the negotiations of the acquisition contract or equipment-overhaul contract. The warranty should also be established as a separate exhibit per ASPR 20-303.1(b).

2. ILS ANALYSES AND PROCEDURES

(Note: The contract statements presented in this section are intended for use in system/equipment contracts that specify requirements for logistics support analysis (LSA), logistics support analysis record (LSAR), and logistics support cost (LSC) analysis. They are listed to permit selective application to specific program needs. They can be incorporated into a contract by direct inclusion, reference, or appendixes to the contract work statement.)

2.1 LSA Plan Requirements

The contractor shall establish a logistic support analysis (LSA) program in accordance with MIL-STD-1388 and the appropriate data-item description, DI-S-6168A, and the requirements contained herein. The LSA program shall be the basis for the integration of the logistics support elements and shall provide the interface between the design engineering and integrated logistics support programs.

2.1.1 Identification of LSA Tasks

The contractor shall accomplish the LSA tasks and activities identified and described in paragraph 5-8 of MIL-STD-1388-1. These LSA tasks shall be repeated (iterated) as the system/equipment design develops, with the purpose of refining and completely identifying the qualitative and quantitative logistics support requirements. (Note: Although it is necessary to iterate the LSA to permit an effective analysis, the government should plan to assume management of the LSA at some point in the acquisition, perhaps at the deployment of the first production article.)

LSA shall be accomplished in conjunction with the system/equipment design effort; it shall evaluate the effect of alternative hardware designs on support costs and operational readiness, and will assess logistics risks. Alternative designs shall include, but not be limited to, feasible CI equipment modular functional and physical partitioning schemes (design synthesis), which identify various LRU and SRU configurations that enhance supportability and reduce life-cycle cost to the maximum extent.

The contractor's proposal shall identify specific end-item and support-equipment Work Breakdown Structure (WBS) elements that impose a logistics support burden. In general, the contractor shall perform LSA on the following types of materiel:

- Contractor-furnished items that can or will be maintained (discarded, repaired, or overhauled) separately from the CI equipment to include modular LRUs and the internal individual SRU assemblies and subassemblies with which they are functionally associated

- Nonrepairable piece parts and government-furnished items that are incorporated into contractor-furnished functional assemblies and subsystems when such analyses are to provide interface information required for determining total support requirements for the assembly or subsystem
- Government-furnished items for which no previous analysis data are available, and where such data are necessary for contractor determination of support requirements under the terms of this contract

LSA shall not be performed on the following types of materiel:

- Government-furnished equipment (GFE) items other than those mentioned above
- Nonrepairable items, bulk materiel, connecting hardware, and bracketry (this materiel shall be included in the analysis of the next higher assembly.)

The documentation resulting from LSA shall establish the basis for quantification and compilation of logistics support requirements for preoperational support and operational support of the system/equipment. The LSA shall define the logistics support requirements in terms of the following:

- Maintenance plans
- Support equipment
- Preoperational support
- Initial and replenishment spares/repair parts
- Packaging/handling/storage/transportability/transportation
- Technical data
- Facilities
- Training

2.1.2 Data-Reporting Procedures and Delivery

The contractor shall submit periodic data reports for the LSA in accordance with the requirements defined in the CDRL. The contractor shall include in these reports all assumptions that he utilized in accomplishing the LSA. (Note: If an LSAR is required for the program, the LSAR summaries can be used in lieu of the periodic reports as long as the assumptions are attached.)

2.1.3 Data Review and Approval by Government

The government shall review and examine contractor-produced LSA data in accordance with the schedule contained in Attachment_____. This review shall include LSA input data sheets, LSA output data drawings, mock-ups, specifications, ADP records, photographic reproductions, etc., necessary to evaluate the contractor's compliance with and satisfactory progress toward accomplishing the requirements established in this contract. The review and acceptance of data from the contractor's LSA program shall be accomplished as specified by the procuring activity. The contractor shall provide to the government facilities and space, at or in the vicinity of the contractor's facility, required for such review and examination. In addition, the contractor shall allow the RILSA regular daily access to both the LSA and the ORLA data.

2.1.4 LSA Updating Requirements

The LSA shall be updated to reflect changes in the operational and support requirements, equipment design, and R&M parameters. Each update shall be considered as new data for the purposes of review, approval, and delivery.

2.1.5 LSA Inputs to LSC

The contractor shall provide updated LSA data for the LSC analysis.

2.1.6 Funding Aspects of LSA

(See ILS Analyses and Procedures section of Lessons Learned for general guidance.)

2.2 LSA Record or Integrated Logistics Data File (ILDF)

The LSAR, or ILDF if applicable, shall be developed as the single source of validated and integrated design-related logistics data pertaining to the acquisition program. LSA data contained therein shall be used to satisfy applicable data-item description (DID) requirements listed in the CDRL (this is a unique data item), and shall establish the basis for such activities as provisioning, preparation of technical publications, maintenance planning, resource and maintenance-task allocation, preparation of allowance lists and manning documents, identification of facilities and storage/stowage requirements, and funding decisions.

2.2.1 LSAR Format

The logistics support analysis record (LSAR) data sheet formats, and associated instructions for data entries thereon, contained in

MIL-STD-1388-1, shall be used to record LSA data. The data-field titles and definitions contained in MIL-STD-1388-2 are the authorized data elements to be used in documenting LSA data. Additional data elements, peculiar to a specific acquisition, may be authorized by the procuring activity. Unless otherwise specified, the dimensions of the data sheet formats and the method of entry (pen, pencil, typewriter, etc.) for the contractor's working documents shall be at the option of the contractor.

2.2.2 LSAR Data Storage and Retrieval Procedures

(For application when ADP is required)

The contractor shall establish and maintain, for the duration of this contract, an automatic data processing (ADP) system to store and process LSA data. This ADP system shall be capable of producing the summaries of LSA data described in MIL-STD-1388-1 and MIL-STD-1388-2.

2.2.3 Data Ownership

The government shall have unlimited rights to all LSA data.

2.2.4 Delivery Schedule for LSAR Data Summaries

The contractor shall deliver the LSAR data summaries in accordance with the requirements in the CDRL.

2.2.5 LSAR Updating Requirements

The LSAR shall be updated in accordance with the LSA updating schedule.

2.2.6 Optimum Repair Level Analysis (ORLA) Requirements

The contractor shall make repair-level recommendations, using the ORLA results as required by the data item DI-R-3549. The ORLA shall be performed in a top-down breakout manner, using the latest operational factors, maintenance times, and reliability values provided and approved by the government. The ORLA shall be performed incrementally, by line replaceable unit (LRU) and the associated shop replaceable unit (SRU), in a sequence such that the maintenance disposition of the SRU is a factor in the evaluation of the life-cycle support cost of the LRU. Acceptance of the ORLA report by the procuring activity shall not be construed as approval of a change to equipment design, AGE, or technical manuals, nor shall such approval be construed to waive or alleviate any of the other requirements or provisions of the contract.

2.2.6.1 Definition of ORLA terms

The contractor shall utilize the terms and definitions contained in Attachment___ for his ORLA determination.

2.2.6.2 ORLA Input Data Source Requirements and Responsibilities

The government shall provide the contractor with maintenance, operational, and cost data required from the government for input into the ORLA. These required input data elements are listed in Attachment___. The contractor shall provide those ORLA data input requirements which are contained in the time line sheets (Ref. DI-S-3608).

2.2.6.3 ORLA Model Requirements

The contractor shall conduct his ORLA analyses in accordance with the model contained in Attachment___ to the contract.

2.2.6.4 ORLA Output Requirements and Reporting Procedure

The contractor shall report the ORLA results in accordance with the schedule contained in the DID, DI-R-3549. The contractor shall include in the report all assumptions that he utilized in accomplishing his ORLA.

2.2.6.5 ORLA Updating Requirements

The ORLA shall be updated to reflect changes in the operational and support requirements, pricing, equipment design, and R&M parameters. Each update shall be reviewed and approved by the government.

2.2.6.6 ORLA Interfaces

The contractor shall ensure compatibility of ORLA results with the data contained in the LSA or ILDF.

2.3 Supportability Testing Interface

(Note: Although testing is not an element of logistics, a portion of the test program is directly related to logistics. Therefore, testing will be discussed here only in regard to those terms which interface with logistics and which should be discussed in the contract.)

2.3.1 Supportability Testing Plans

The SOW should be reviewed to assure that the DT&E and OT&E testing includes requirements for logistics testing/demonstration. Consideration must be given to delivery of test data and reports that have an impact on logistics. The test schedule should allow sufficient time for test feedback to influence the system design and retest. The test plan should be developed in accordance with the requirements of the DID, DI-S-6170, DI-T-3702, or DI-T-3706, as applicable.

2.3.1.1 LSA/LSAR Supportability Test Requirements

Ensure that the system/subsystem test procedures incorporate methodology to measure the LSA/LSAR supportability estimates.

2.3.2 Supportability-Data Collection and Reporting Procedures

The SOW should require that supportability (logistics) testing/demonstration conform to the requirements and procedures set forth in MIL-STD-471A. Data collected and recorded during testing should be analyzed by the contractor, and the LSA and LSAR should subsequently be updated accordingly. The data collection and reporting procedures should conform to the requirements of DI-S-6170 or DI-T-3718 (as applicable) contained in the CDRL.

2.3.3 Impact of Supportability Test Results

Test results must be evaluated for impact on spares, maintenance, training, technical publications, and support equipment.

2.4 Logistics Support Cost (LSC) Trade-Off Analysis

If LSC commitment provisions are included in the contract, this section can be deleted. Otherwise, the following statements should be addressed:

- By utilizing the results of the LSA and ORLA, the contractor shall identify those operational, design, and logistics factors (items) which shall become subjects for logistic-support-cost trade-off analyses. The contractor shall then perform these trade-off analyses and update them periodically for system configuration changes. These analyses shall also be updated to be consistent with the current maintenance and operational concepts.
- The results of such analyses shall be submitted in accordance with the requirements of the applicable DID contained in the CDRL (DI-S-3606) and shall be expressed in constant (FY) dollars, inflated dollars, and dollars discounted to present

value. The results shall be used as inputs to the system life-cycle-cost analysis for determination of each item's impact on the system's total life-cycle cost.

2.4.1 Contractor Utilization of LSC Trade-Off Analyses

The government shall provide the contractor with instructions for applying the results of the LSC trade-off analyses to the system program decisions. (Note: These instructions should be developed from the guidance provided in the program PMD and PMP and incorporated in this section.)

2.4.2 Terms and Definitions

The contractor shall utilize the terms and definitions contained in Attachment__ to the SOW.

2.4.3 LSC Input Data Source Requirements and Responsibilities

The government shall provide the contractor with maintenance, operational, and cost data required for input into the LSC. The required input data elements are listed in Attachment____.

2.4.4 LSC Model Requirements

The contractor shall conduct his LSC analyses in accordance with the model contained in Attachment___ to the contract. (Note: The LSC model should be developed to consider the support-cost impact of facilities, training, technical manuals, technical data, inspection intervals, and support personnel.)

2.4.5 LSC Output Requirements and Reporting Procedures

The contractor shall present a complete LSC analysis, including evaluation of risk and uncertainty, and shall display the results of a sensitivity analysis of the cost-driving parameters. Technical risk shall be addressed in terms of resultant costs of range values about the technical parameters, and explanatory discussion of technical risk shall be comprehensive. With each LSC estimate and evaluation, the contractor shall provide a detailed rationale, including all assumptions, to support each discrete cost element of the estimates. Complete treatment of submodels, formulas, cost-estimating relationships, and maintenance concepts used under a cost element shall be shown. The contractor shall report the results of the LSC analyses for each affected item in accordance with the applicable DID contained in the CDRL (DI-S-3606).

2.4.6 LSC Updating Requirements

The contractor shall update the LSC model to account for any changes in the program design and operational or maintenance concept, and shall recompute the LSC estimate on the basis of the updated model.

2.4.7 LSC Interface with DTC

(Note: The PMD will provide the interface requirements of LSC with DTC. The wording for this statement should come from the interpretation of the statements in the PMD.)

3. INITIAL SPARES/REPAIR PARTS PROVISIONING

3.1 Provisioning Plan Requirements

The contractor shall perform those tasks and provide the data required for the satisfactory provisioning of initial spares/repair parts in accordance with the requirements contained in the provisioning requirements statement (PRS) (DD Form 1949-2) and with the requirements contained in MIL-STD-1552, MIL-STD-1561, and the associated DIDs incorporated in the CDRL (DI-V-7000 through 7009).

3.1.1 Provisioning Documentation and Data

Provisioning technical documentation (PTD) and supplementary provisioning technical documentation (SPTD) shall be submitted in accordance with the requirements of MIL-STD-1561 and the applicable DIDs contained in the CDRL. In developing the PTD and SPTD, the contractor shall utilize the most current data being developed for other government requirements, such as R&M, maintenance analysis, etc. The contractor, however, shall not delay the preparation pending development of the other data.

3.1.2 Provisioning Performance Schedule

The contractor shall deliver the provisioning technical documentation (PTD) and support items (SIs) in accordance with the provisioning performance schedule (PPS) contained in Attachment_____ to the contract.

3.1.3 Provisioning Conference Requirements

The requirements for provisioning conferences shall be in accordance with the PRS (DD Forms 1949-1 and 1949-2).

3.1.4 Vendors/Subcontractors' Compliance Procedures

The contractor shall obtain a letter of compliance from each of his vendors and subcontractors stating they shall comply with the data requirements levied on them for PTD and SPTD associated with end items procured from them. This letter of compliance shall be imposed on the vendors and subcontractors prior to the time purchase orders are issued and must address the applicable requirements, procedures, terms, conditions, and data requirements of MIL-STD-1561.

3.1.5 Contractor Provisioning Recommendations

The contractor shall make recommendations for both the range and quantity of support items based on program data and proposed operational and maintenance plans for the end item. Contractor recommendations will be supported by logistics support analyses (LSA) when such analyses are a requirement of the contract.

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INTEGRATED LOGISTICS SUPPORT (ILS) CONTRACTUAL PROVISIONS GUIDE--ETC(U)
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3.2 Interim Contractor Support (ICS) Requirements

3.2.1 Interim Contractor Support Plan

The contractor shall develop a plan (or update his existing plan) for determining and identifying candidate subsystems and components for ICS. The contractor's ICS plan shall identify and define the programming, funding, and management requirements for the ICS candidate subsystems and components.

3.2.1.1 Turnover to Organic Support

The contractor shall address his time-phased plan for establishing and transitioning those subsystems and components under ICS management to normal organic support.

3.2.2 Contractor's Interim Contractor Support Analysis

The contractor shall conduct a trade-off analysis to identify those subsystems and components which are candidates for ICS for the period specified in Attachment____. The contractor shall determine the probability of design change by conducting a design-risk analysis as a part of the system design engineering plan. Specific substantiation of the probability of design change shall be developed during engineering design and risk analysis to support application of ICS to specific subsystems and components.

3.2.2.1 ICS Impact on Total Support Requirements

Since decisions to postpone investment in support equipment and spares/repair parts will affect the procurement of technical data and technical equipment and the assignment and training of personnel, the contractor shall exert controls to ensure that the complete support capability is considered in his trade-off analysis.

3.2.3 ICS Trade-Off Analysis Reporting Procedures

The contractor shall submit the results of the ICS trade-off analysis in accordance with the requirements of the applicable DID contained in the CDRL, DI-S-3606. The contractor shall submit with the report all assumptions used in the analysis and their justification.

3.2.4 Follow-On Identification of ICS Candidates

The contractor shall identify additional candidates for ICS after production has been initiated when support difficulties are discovered and identified and are found to be beyond organic capability for government repair. The contractor shall evaluate each of the candidate subsystems and components with regard to the total support

requirements and, if ICS is determined to be cost-effective, shall include these additional items in the ICS program by proposing either an amendment to the existing contract or the initiation of a separate contract.

3.3 Spares Acquisition Improvement Program (SAIP)

Spare parts to be procured under Items _____ hereof (Note: contained in the schedule of the contract) shall be in accordance with the "Spares Acquisition Improvement Program (SAIP)" procedures set forth in paragraph 3.3.2. The contractor shall ensure that the elements or interfaces of LSA or ILDF necessary to support the SAIP program are included in the LSA or ILDF.

3.3.1 SAIP Objectives

The objectives of SAIP are to reduce the acquisition price of spare parts and improve logistics support by:

- Concurrent ordering of certain selected spare parts with the contract end item
- Stabilizing of "on order" quantities
- Securing of firm proposal and establishment of firm, or not to be exceeded, prices for spare parts prior to contract authorization

3.3.2 SAIP Ordering Procedures

Not less than ___ days prior to the scheduled date for exercise of a production option, or the long-lead funding for a production option, or the date of issuance of a new follow-on contract, whichever is earlier, the contractor shall submit to the _____ spares SAIP data required by CDRL items _____ of Contract _____ (Note: reference the system contract). The _____ ALC within ___ days from receipt of the contractor submissions shall inform the contractor of the items, quantities, and desired delivery dates for the selected SAIP. Within ___ days of the _____ ALC submittal, the contractor shall provide to the AFPRO/TMD and the _____ ALC a fully supported, firm-proposal-priced spare parts list (PSPL) for selected SAIP items. The total firm-proposal price shall constitute a not-to-exceed price. The _____ ALC will submit provisional item orders (PIOs) via Logistics Support Analysis Record (LSAR) or integrated logistics data file (ILDF) based on the contractor's established need date. Upon exercise of a production option, or the long-lead funding for a production option, or the issuance of a new follow-on contract, but in no event later than ___ days after contractor submittal of firm proposal (PSPL) to the _____ ALC, spares orders shall be released to the contractor.

3.3.3 SAIP Price Negotiation

The AFPRO/TMD and the contractor shall promptly negotiate the price of the selected items and establish a negotiated spare parts list (NSPL), which shall be incorporated into the contract by written modification.

3.3.4 Configuration Management of SAIP Items

The spare parts furnished under this contract (except as directed by the _____ ALC) shall be of the identical configuration as the corresponding parts utilized in the _____ System, as established by the physical configuration audits of the configuration items in which they are to be used or as amended by approved Engineering Change Proposal (ECP) action.

3.4 Phased-Provisioning Recommendations

The contractor shall comply with the provisions of MIL-STD-1517 for phased provisioning. The cost of the contractor's compliance shall be set forth as a separate line item in the contract.

4. SUPPORT EQUIPMENT

4.1 Contractor's Support Equipment Plan Requirements

The contractor shall provide an SE plan that is in accordance with the requirements of the applicable DID in the CDRL, DI-A-6102. (Note: To save time and unnecessary work, the contractor's SE plan should address a plan for workable communications between the contractor and the TRCs via approved channels. This communication channel would allow the TRCs and the contractor to discuss possible use of GFE in support of contractor peculiar SE, particularly ATE, early in the acquisition process.)

4.2 Impact of System Operational and Support Concepts

The contractor shall, in accordance with AFAD 71-685 or MIL-STD-499 as appropriate, make a detailed analysis of the functional requirements for the system/equipment to be supported so that the needs for SE can be defined. To cover all considerations, this analysis shall be made on the total system, individual items of equipment, and areas of maintenance support. The analysis shall be based on the operational concept/plan and support concept/plan, and on specific guidance furnished by the procuring activity at the time of the contract.

4.3 SE Detailed Analysis Requirements

The contractor shall establish and recommend initial SE proposed quantitative requirements by use location based on the functional analysis of the system/equipment base of activity. The contractor shall determine these requirements for depot-level and intermediate-level SE, GFE, CFE, and any special tools or equipment that may be required. The contractor shall utilize commercial "off the shelf" and modified commercial SE to the maximum extent consistent with the system design requirements. Where new SE must be developed to meet the system requirements, the contractor shall consider for trade-off those decisions relating to the standardization of design requirements, parts, modules, and units, and the compatibility of test parameters for all lines of maintenance. The contractor's analysis shall also address support requirements for support equipment. In developing these requirements, the contractor shall use Design Handbook 2-6 and MIL-HDBK-300 for influencing design and selecting common items of equipment. The procuring activity will verify or correct the contractor's proposed quantities and issue a firm quantity by line item.

4.3.1 Support Equipment Recommendations Data (SERD) Requirements

In accordance with AFAD 71-685 and MIL-STD-499A as appropriate, the contractor shall develop SE recommendations for each support function identified and shall recommend equipment to accomplish the function in accordance with the applicable DID in the CDRL, DI-D-3596. The contractor's recommendations shall include a detailed functional description of the proposed support equipment and shall be compatible with the LSA or ILDF.

4.3.2 Consolidated Support Equipment List (CSEL) Requirements

Items selected and approved by the government shall become a part of the contract through the consolidated SE list in accordance with the applicable DID in the CDRL, DI-V-6183.

4.3.3 Priced Support Equipment List (PSEL) Requirements

The contractor shall subsequently prepare, on the basis of the CSEL, a priced support equipment list in accordance with DI-V-6186 for submittal to the government for approval.

4.4 SE Status Reports

The contractor shall submit periodic status reports in accordance with the applicable DID contained in the CDRL, DI-F-6127 or DI-S-6177.

4.4.1 Delivery Schedule and Acceptance Procedures for DT&E/OT&E

The contractor shall deliver preproduction SE items to meet the schedule established for the Development, Test and Evaluation/ Operational Test and Evaluation (DT&E/OT&E) of the preproduction items. The SE items shall be used and tested along with the other deliverable equipments to ensure compatibility.

5. COMPUTER RESOURCES IN SYSTEMS REQUIREMENTS (CRIS)

5.1 Definition of Computer Resources in Systems Requirements

The contractor shall prepare a computer programming system plan consistent with the requirements of MIL-STD-483, MIL-STD-876, and MIL-STD-490. The computer programs developed for this program shall be identified as configuration items. The contractor shall utilize higher-order language where practicable and shall take every advantage of existing government programming equipment in the development of computer programming system design. The computer program system shall be developed in accordance with the requirements of the applicable DID contained in the CDRL, DI-E-3119A or DI-E-3120A.

5.2 Identification and Availability of Existing Capabilities

The contractor shall determine the identification and availability of existing government computing systems, programs, and languages utilized in the support of similar systems/equipment. He shall identify data bases in use and utilize existing formats and conventions in generating new data bases. On the basis of this study, the contractor shall define the computing system required to satisfy the requirements of the system being procured. The contractor shall identify the software support facilities that shall be required for organic support by conducting a cost trade-off study to determine the method of support (organic or contractor).

5.3 CRIS Configuration Management and Verification, Validation, and Certification

The contractor shall be responsible for configuration management and verification, validation, and certification of all computer programming systems generated for the support of the system acquisition.

5.4 CRIS Data Rights Requirements

The government shall have unlimited data rights to all computer programs required to operate, simulate, stimulate, and support the system pursuant to the language contained in ASPR 9-602. In addition, the contractor shall obtain government approval prior to utilization of any languages not supportable independently of other computing systems. (Consideration should be given to inserting this statement in the Special Provisions section of the contract.)

6. PACKAGING/HANDLING/STORAGE/TRANSPORTABILITY/TRANSPORTATION

6.1 General Considerations

The contractor shall identify the activity within his organization that has specific responsibility for matters pertaining to packaging, materials handling, and transportability management. Information shall also be furnished to indicate whether or not the engineering (item) design is coordinated with the packaging design, the types of items for which this is accomplished, and at what point such coordination (if any) takes place. MIL-P-9024G sets forth packaging, handling, and transportability requirements, criteria, and related procedures that will be complied with in support of the program. Performance of packaging and transportability tasks shall be in phase with the total program schedule, with planning directed toward early identification and resolution of transportability constraints. Data generated from these tasks shall be properly reflected in the LSA or ILDF.

6.1.1 Packaging Definition and Policies

The term "packaging" when used generically is considered to include cleaning, preserving, enclosure by wrapping or encasing, applying cushioning and blocking, packing in intermediate and exterior containers as required, and marking. Packaging design shall be in accordance with criteria established by MIL-P-9024G, MIL-STD-794, and the policies outlined in paragraph 6.5, below.

6.1.2 Consolidation of Packaging, Transportability, and Transportation Requirements

Reusable containers and transportability and transportation equipment required to support test-program requirements shall be so designed that, upon approval by the government organization having responsibility for operational packaging and transportation, they shall satisfy production/deployment requirements without further design or test effort, unless otherwise justified by program cost or schedules.

6.1.3 Administration of Packaging Tasks

The preservation, packaging, packing, and marking tasks shall be treated as an entity, or individual segregated item, within the Work Breakdown Structure (WBS). Records of the labor and material costs shall be maintained by the contractor and shall be provided to the government upon request.

6.2 Preparation for Delivery

With the exception of GFP and MILSTRIP items shipped directly to the using activity by the government, the contractor shall be responsible for preservation, packaging, and packing of all items, including prime-mission equipment, acquisition spare parts, initial operational spare parts, AGE, RPIE, vehicles, machinery, material, and supplies to be delivered under the terms of the contract. The contractor shall ensure that the requirements specified in the contract are complied with by all his vendors or subcontractors involved in making direct shipments to the government. Preservation and packaging shall be in accordance with the requirements of MIL-STD-794C and MIL-P-9024F. Levels of protection shall be as follows:

- CONUS - Surface/air shipments - Immediate Use - Level C preservation and packaging and Level C packing
- CONUS - Surface/air shipments - Storage over 30 days - Level A preservation and packaging and Level B packing
- Overseas - Surface Shipments - Level A preservation and packaging and Level A packing
- Overseas - Air Shipment - Immediate Use - Level C preservation and packaging and Level C packing

Items shipped in response to requests for amended shipping instructions (ASIs) shall be preserved, packaged, and packed in accordance with requirements for ASIs as contained in Attachment ___. (Note: This attachment is a copy of the reverse side of the AFLC Form 872.)

Preservation and Packaging for provisioned items shall be in accordance with Level A requirements as prescribed by MIL-STD-794. The contractor shall comply with detailed preservation and packaging requirements which may be, at the option of the Air Force, furnished during provisioning/source coding meetings. Contractor shall develop and submit preservation and packaging data in accordance with requirements of MIL-STD-834 for only those provisioned items for which the Air Force does not stipulate detailed requirements prior to or during provisioning/source coding meetings.

6.3 Marking of Shipments

Container marking shall be in accordance with ASPR contract clause 7-104.68 (MIL-STD-129). (Note: Special ESD identification labels are required for shipments of material outside the CONUS in accordance with ESD ASPR Supplement Clause 7-104.68.)

6.3.1 Dangerous/Hazardous Material Constraints

Hazardous materials shall be identified and prepared for shipment in accordance with Code of Federal Regulations 14, 46, or 49 or AFM 71-4, as applicable. The contractor shall mark, label, and prepare for shipment all dangerous materials to be transported by military air in accordance with the applicable provisions of AFM 71-4.

6.4 Package Design Criteria

The contractor shall utilize the general design factors and requirements of AFSC Design Handbook 1-2, Chapter 5, Section 5B, for the development of package designs.

The contractor shall ensure that accomplished packages/packs are of lowest practical weight and cube consistent with the physical protection required. Items of a rugged, sturdy, noncritical nature shall be shipped without packaging/packing when capable of withstanding the hazards to be encountered.

Items subject to repair shall be researched to determine which items require reusable containers. The reusable container shall be selected from existing government or contractor designs, when applicable, to reduce package design and fabrication costs. The reusable-container design shall be considered in accordance with the definition of Category I (Reusable Container) and Category II (Reusable Pack) in AFM 71-9. Consideration shall be given to refurbishment and reuse of reusable containers (Category I) in the government inventory that are surplus to government needs.

6.4.1 Special Design Protective Equipment Requirements

The contractor shall recommend to the Program Office all special design protective equipment (SDPE) and specialized containers necessary to provide life-cycle support of the system/equipment involved. When authorized by the PO, SDPE and specialized containers shall be developed in accordance with MIL-P-9024.

6.4.2 Transportation Packaging Order Requirements

Transportation Packaging Orders (TPOs), which include narrative and Fast Pack TPOs, shall be developed by the contractor for all recoverable items having expendability/recoverability/repairability category (ERRC) codes "C", "T", and "S" that are subject to shipment as an individual item between field activities and a depot or contractor repair facility. Reports shall be prepared by the contractor for tests conducted in accordance with MIL-STD-794. Cost-analysis data and test reports on all TPOs and drawings shall be made available to the government upon request. Submittal of all SDPE (engineered containers, skids, etc.) proposals shall be subjected to

the same test and cost back-up data as required for TPOs. Maximum use of PPP-B-001672, Types I through IV (Fast Pack), containers shall be made in lieu of special design TPOs within the limits of the cushioned-container design. Those items assigned to Fast Pack by virtue of their size, weight, and fragility level falling within the established parameters for each type and size shall not be tested.

6.4.3 Package Design Approval Actions

The contractor shall not release material for shipment without prior approval of the individual package design requirements by the cognizant Program Office of the procuring activity or its designated representative. Predeployment spare parts are excluded from this requirement.

6.5 Packaging Data Requirements

When approved packaging data are not furnished to the contractor by the government, detailed packaging data shall be developed by the contractor and furnished to the government for all delivered items, repair parts, kits, and SE. These data shall be developed, submitted, and approved in accordance with MIL-STD-834 and Data Item DI-L-6147. When a configuration item (CI) specification has been developed for an item, the packaging data provided in accordance with MIL-STD-834 shall be compatible with the Section 5 requirements of the approved CI, Part II specification, and the CI specification number shall be annotated on the Figure 1 format required by MIL-STD-834.

When Section 3 of the CI specification indicates potential packaging, transportability, or handling problems, and when special-study packaging is required (reference paragraph 3.4.5.4 of MIL-P-9024G), the contractor shall incorporate detailed preparation-for-delivery requirements in Section 5 of the CI, Part II specification. In these cases, every effort shall be made to comply simultaneously with the requirements of MIL-STD-834 for the development and submittal of detailed packaging data to the designated ALC/DSPC.

When it is determined that special-study packaging is not required for inclusion in Section 5 of the CI, Part II specification, the following shall be incorporated into Section 5 of the CI specification, and detailed packaging data shall be developed and submitted in accordance with MIL-STD-834 requirements.

"Preparation for Delivery

"Preservation and Packaging

"Level A. Methods of preservation and packaging shall be determined in accordance with MIL-STD-794 and accomplished in accordance with MIL-P-116 and MIL-STD-794.

"Level C. Preservation and packaging shall comply with Level C requirements as defined in MIL-STD-794.

"Packing

"Levels A, B, and C. Packing and shipping containers shall be in accordance with requirements of MIL-STD-794.

"Marking

"Marking shall be in accordance with requirements of MIL-STD-129."

6.6 Handling

The contractor shall provide any materials-handling equipment or devices required beyond those currently available as national stock number or commercial standard items and proposed for provisioning action. The selection and use of skids, pallets, cargo-consolidating containers, etc., for the movement of material shall, to the extent practical, conform to standard configurations used by the commercial and military carriers, including MAC and Military Sealift Command (MSC), and shall, to the extent possible and practical, be compatible with the 463L material-handling system. The contractor shall submit a plan and cost proposal for development of such equipment and devices in accordance with the requirements of the applicable DID contained in the CDRL, DI-A-3014. The contractor shall identify those items of transportation-related handling equipment which may also be used as support equipment.

6.6.1 Special Handling Requirements

The contractor shall provide a list of, and related instructions for, those items not identified by the procuring agency which require special handling.

6.7 Storage

The contractor shall identify limitations for items that will deteriorate with Level A packaging; be hazardous to personnel, property, or equipment; or require special environmental protection.

6.7.1 Storage Facilities Classification Requirements

The contractor shall provide storage facilities with classification level appropriate for the classification level of contract items to be stored.

6.8 Transportability Design Considerations

The contractor shall ensure that transportability is a major consideration during the design or modification of system equipment, hardware, or prototype items. Items of hardware that are anticipated to exceed the transportability criteria contained in the AFSC Design Handbook 1-2, Chapter 5, Section 5B, shall be identified for evaluation and design approval. The criteria and procedures relating to transportability outlined in Specification MIL-P-9024 shall be complied with in performance of these SOW requirements.

6.8.1 Transportability Evaluation Plan Requirements

As part of his contract effort, the contractor shall develop and deliver to the government transportability reports for all oversize, sensitive, or dangerous items, and other items that present a transportability problem as delineated in MIL-P-9024G. The transportability reports shall be submitted in accordance with the DID requirements contained in the CDRL, DI-L-6148A.

6.8.2 Design Criteria

The contractor shall comply with the transportability design criteria contained in paragraphs 3.2.6 and 3.2.9 of the program (system) specifications. Shipping configuration of the system hardware and components is the baseline for evaluating the transportability constraints. Design of equipment and hardware in shipping configurations shall provide for blocking, bracing, and tie-downs for all recommended modes of transportation. The contractor shall provide loading, unloading, and movement instructions and procedures for outsized, overweight, dangerous, and sensitive items.

6.8.3 Specialized Materials Handling Requirements

The contractor shall identify and define requirements for any specialized materials-handling equipment for use in the movement of transportable items.

6.8.4 Nonstandard Transportability Problems

For those items of equipment which cannot be designed to meet established transportability criteria, the contractor shall comply with the Transportability Report Data Item contained in the CDRL, DI-L-3327A.

6.9 Transportation Plan Requirements

The contractor shall develop a transportation plan in accordance with the requirements of the applicable DID contained in the CDRL, DI-L-6149A (when required).

6.9.1 Unusual Transportation Requirements

The contractor shall notify the cognizant transportation activity in cases where existing transportation support or services will not permit delivery in accordance with the Required Delivery Date (RDD), or where emergency transportation support is required.

6.9.2 Contractor's Technical Representative Requirements

The contractor shall be prepared to provide technical transportation representatives at Program Office conferences that involve the discussion of technical transportation subjects.

6.9.3 Special Transportation Equipment Requirements

The contractor shall advise the Program Office of any special equipment required to off-load material and transport the cargo (including spares) to the base(s).

6.9.4 Off-Base Loading and Movement of Goods Requirements

The government will be responsible for the unloading of carriers' equipment on-base and furnishing on base transportation of material and personnel within the limits of their capability.

6.9.5 Loss or Damage Clause

If loss or damage to property is incurred as a result of government-furnished transportation, the contractor shall, upon receipt of the material: (1) immediately notify the appropriate government base representative, the ACO, and PO Transportation Officer; (2) prepare or ensure preparation of DD Form 6, Report of Packaging and Handling Deficiencies (when damage results from improper packaging or handling), and further assure that a copy of the report, including all facts, circumstances, and photographs, is forwarded to the procuring activity (in addition to normal distribution); and (3) take necessary action to repair or replace the damaged or lost material as directed by the Contracting Office.

6.9.6 Passenger and Cargo Movement Requirements

The contractor shall submit to the Program Office his passenger and cargo movement requirements in accordance with the reporting procedures contained in AFR 75-15.

6.9.7 Classified/Sensitive Shipments

Material and equipment in these categories shall be handled, transported, transmitted, and protected in accordance with the DoD Industrial Security Manual and Chapter 12 of AFM 75-1, which contain

specific instructions for safeguarding classified/sensitive material, and as directed by the Contracting Officer.

6.9.8 Consolidation

Shipments shall be consolidated and shipped in palletized, unitized, and containerized loads whenever deemed in the best interests of the program to do so.

7. PREOPERATIONAL SUPPORT

7.1 Preoperational Support Guidance Conference Requirements

The contractor shall recommend a date for convening a Support Guidance Conference at his facility to be not later than ____ days from award date, preferably at the time of the preoperational SE guidance meeting, to establish agreement as to the method for accomplishing the preoperational support tasks.

7.1.1 Contractor Participation in Base Activation Plan (If Applicable)

The contractor shall provide support for base activation by performing the following tasks:

- Prepare base surveys to assure that selected sites are or can be made logistically supportable
- Prepare inputs to host tenancy agreements
- Provide the required preoperational support not readily available in government resources as defined in RFP (Note: The government will define government support in terms of type, quantity, extent, and period.)

7.1.2 GFP Identification Requirements

The contractor shall determine and identify all GFP requirements for preoperational support in accordance with ASPR 13-101-1. The contractor shall identify, as a minimum, the GFP description (including NSN), the quantity, the delivery point and the date of delivery, and the conditions and responsibility for maintenance repair and modification.

7.2 Preoperational Support Plan

The contractor shall prepare a preoperational support plan in accordance with the applicable DIDs contained in the CDRL, DI-L-3302, DI-L-6143.

7.2.1 Preoperational Spares/Repair Parts Provisioning

The contractor shall be responsible for providing all spares/repair parts support for maintenance of deliverable equipments, including SE, RPIE, and training equipment during the preoperational period.

7.2.2 Recommended Range and Level of Spares/Repair Parts

The contractor shall determine the most practical range and level of spares/repair parts required for satisfactory performance of maintenance consistent with the government-approved maintenance concept.

The determination shall be based on the MEA/ORLA. The contractor shall identify and present his spares/repair parts recommendations on prescreened listings (DI-V-3832) for review and approval by the government, and provide supporting rationale, including all assumptions, to the procuring activity upon request.

7.2.2.1 Spares/Repair Parts Prescreening Requirements

The contractor shall prescreen, as required by DD Form 1423 DID, DI-V-3831A, to identify and verify the NSNs recorded in the Defense Supply Agency system for his recommended spare parts requirements. The results of prescreening shall be reflected in the LSA or ILDF.

7.2.2.2 Spares/Repair Parts Revisions

The contractor shall submit revisions to his recommended lists for all program changes that affect spares/repair parts within ____ days after each change is accepted.

7.2.3 MILSTRIP Requisitioning Procedures

The government shall furnish all NSN items in the range and level it approves. The contractor shall MILSTRIP-requisition the NSN items in accordance with ASPR Appendix H on a "Fill-or-Kill, no substitute" basis, showing need date as contractor/production/procurement lead time prior to program need date to protect against supply unavailability. Items not supplied from requisitions shall automatically become contractor-furnished-equipment (CFE) items.

7.2.4 Spares/Repair Parts Delivery and Deployment Schedule

The contractor shall be responsible for assuring that the government-approved range and level of spares/repair parts are acquired prior to need date (start of installation) and shall maintain a delivery schedule to accomplish this. Within the limitations of funds administratively reserved for the spares/repair parts, the ACO may authorize the contractor, as necessary to meet delivery requirements, to acquire those spares which must be released prior to the normal government approval cycle; but these will be reflected on the next submission to the procuring activity within ____ days after such release. The government reserves the right to change quantities or delete items interim-released; and if cancellation costs result, a Cancellation Addendum will be processed.

7.2.4.1 Design Change Impact

When an approved design change is authorized for a contract end article or SE item, the contractor shall change the spare parts on order or delivered on a pro-rata basis. Revisions to the contractor's recommendations (DI-V-3832) shall reflect these changes.

7.2.5 Spares/Repair Parts Order Acceptance Procedures

Spares/repair parts ordered as above will be accepted at the contractor's or subcontractor's/vendor's manufacturing plant on DD 250 by the government for delivery as directed by the government PCO. Identification will be the manufacturer's part number; and transportation, preservation, packaging, and marking will be in accordance with instructions contained elsewhere in this SOW. GFP may be shipped from the contractor's plant on DD 250 or 1149.

8. MAINTENANCE MANAGEMENT

8.1 General Maintenance Policy

The contractor shall ensure that his workmanship, procedures, and quality of material used during the repair, overhaul, and modification of each item shall result in a product capable of meeting government reliability standards as defined in the end-item/article contract.

The extent of work to be accomplished on items during repair, overhaul, or modification shall be only that which is necessary to restore the items to a serviceable status or to incorporate an approved modification. Neither item design nor functional capabilities will be changed, modified, or altered unless this action is authorized in writing by the PCO.

The contractor shall supply complete repair and performance data for all systems, including detail repair standards, drawings, and performance specifications required to repair each system and component.

8.1.1 Non-Stock-Numbered Repair Policy

The contractor shall identify and repair or modify non-stock-numbered CFE/GFAE (where no NSN is assigned) that cannot be repaired at local government facilities. The contractor shall make arrangements to transfer his repair/modification responsibilities progressively to the designated government facilities upon completion of the contractor support program.

8.1.2 Stock-Number Repair Policy

The contractor shall identify and repair or modify stock-numbered CFE/GFAE/GFP (where an NSN is assigned) that shall be inventory-controlled by the contractor and cannot be repaired by the government. The contractor shall exchange items to be repaired with serviceable units through the government supply channels.

8.1.3 Item Condemnation Procedure

The contractor shall obtain government inspection and approval prior to condemnation of all items determined to be unfit for repair or reuse, with the following exceptions:

(1) Items for which the part cost is $_____ or less

(2) Parts for which replacement parts are being furnished as part of a repair kit or where parts are replaced in accordance with instructions contained in TCTOs

(3) Items for which repair or overhaul is determined to be uneconomical. In these cases, the contractor shall be ready to furnish a full explanation for his decision to the government.

8.2 Repair, Modification, and Overhaul Procedures

The contractor shall submit maintenance data (defined in Attachment _____) for all items to be repaired, modified, or overhauled as specified in the contract. The contractor shall inspect each item to determine the extent of work required to return the item to a serviceable status.

8.2.1 Bench-Check Procedure

Repairable items that are subject to a "bench check" shall be examined to determine the extent of work required and necessary repairs and tests for returning the item to a serviceable status. For items that are not subject to a calendar or hourly time interval of replacement or do not require "bench check" procedures to determine condition status, appropriate repairs and tests shall be performed to return them to a serviceable condition.

8.2.2 Time-Controlled Item Repair

The accrued and remaining operating time or scheduled calendar replacement time shall be transcribed on the serviceable-parts tag upon completion of the repair work for repaired items that are subject to an hourly or calendar replacement.

8.2.3 TCTO Compliance Requirements

Outstanding TCTOs shall be accomplished concurrently during repair of items only when authorization is given in writing by the ACO.

8.2.4 Item Overhaul Instructions

Overhaul shall be performed on items for which it is indicated that the hourly or calendar time interval for replacement has been exceeded, that the items have failed internally or been contaminated or involved in an accident, or that the historical data are incomplete and past usage cannot be determined. In the performance of overhaul, the item shall be disassembled to the extent required by applicable overhaul instructions or for thorough internal cleaning and inspection of parts.

Disassembly, cleaning, inspection, repair, rework, and replacement of the item or its component parts shall be performed in

accordance with the general overhaul instructions as follows:

- Rework or repair all repairables to be capable of meeting the designed functional capabilities contained in the specification.
- Replace condemned components or parts of items with serviceable components or parts as reflected in government drawings and handbooks, and replace those components and parts that are normally replaced during overhaul. Government approval is required for the use of "suitable substitutes".
- Continue in use the item, components, or parts determined to be serviceable as a result of inspection or test.
- Handle all serviceable precision-matched or mated components or parts in a manner to ensure correct installation and function during reassembly.
- Accomplish TCTOs only when so authorized by the ACO.
- After completion of the above work, assemble and test-calibrate, if necessary, the items in accordance with applicable overhaul instructions and contract reliability requirements to ensure serviceability prior to reissue.
- After completion of repair, overhaul, or modification of items, finish them to the extent necessary to provide adequate protection and identification.

8.3 Inspection, Marking, and Packaging Requirements

The contractor shall package and mark all repaired items in accordance with the instructions contained in Attachment _____. (This will be an attachment to the contract.)

8.3.1 Government Inspection Rights

The government reserves the right to select any item after repair or overhaul for complete or partial disassembly, inspection, or functional test to determine the contractor's compliance with the requirements contained in Attachment _____. Any schedule delays or additional costs caused by the government's exercise of this option will be negotiated by the ACO.

8.4 Maintenance-Associated Requirements

The contractor shall determine and integrate all areas that affect or interface with the maintenance task.

8.4.1 Contractor Engineering and Technical Services (CETS) Plan

The contractor shall determine if CETS is required to accomplish the maintenance task.

8.4.1.1 CETS Plan Requirements

The contractor shall submit, within _____ days of contract award, a CETS plan in accordance with the requirements of the applicable DID contained in the CDRL, DI-A-3015 or DI-A-6101.

8.4.1.2 CETS Plan Approval

The government shall review and approve or disapprove the contractor's CETS plan _____ days after receipt.

8.4.2 Equipment Maintenance and Historical Records Requirements

The contractor shall prepare, maintain, and furnish equipment maintenance and historical records in accordance with the applicable DID contained in the CDRL, DI-M-3418A.

8.4.3 Material Deficiency Reports

The contractor shall prepare and submit material deficiency reports in accordance with the applicable DID contained in the CDRL, DI-R-3536A.

8.4.4 Maintenance Action Documentation

The contractor shall prepare and submit completed AFSC Forms 258/258-4 documenting all maintenance actions commencing with the development and evaluation phase for acceptance testing. The contractor shall submit the AFSC Forms 258/258-4, along with the DID, DI-R-3537, contained in the CDRL.

8.4.5 Technical Order Equipment Work Unit Code Classification

(When Applicable)

The contractor shall furnish work unit codes (WUCs) for all equipment in accordance with the applicable DID contained in the CDRL, DI-M-3407A. These codes shall be available for use commencing with data documentation.

8.4.6 Equipment Classification Requirements

The contractor should determine the equipment classification (EQ/CL) codes that are used in documenting maintenance failure data.

9. TRAVEL

(Note: Two sample tasks are shown. The first is shown for those programs that will have bases in the Continental United States (CONUS) only. The second sample is for use in programs that will have bases overseas, or both overseas and within the CONUS. (See ESDP 800-4, Task 26.)

9.1 Domestic Travel Requirements (CONUS)

9.1.1 Mode of Transportation

The contractor agrees, in the performance of necessary travel, to use the lowest-cost mode of transportation commensurate with the requirements of the mission and in accordance with good traffic-management principles. When it is necessary to use air travel, the contractor agrees to use air coach, tourist class, economy class, or similar accommodations. If the contractor cannot comply and must use first class travel, he shall obtain written approval from the government for each case.

9.1.2 Domestic Passenger Travel

The contractor shall be responsible for obtaining and funding for all domestic transportation required in the performance of this effort.

9.1.3 Financial Responsibilities

The contractor shall be responsible for funding all costs associated with travel and transportation of contractor's employees. These costs include such items as the following:

(1) Domestic (CONUS) airline tickets

(2) Land transportation costs (i.e., car rental, buses, trains, taxis, limousines, etc.)

(3) Per diem expenses (i.e., hotels, meals, tips, etc.)

9.1.4 Travel Orders

Government travel orders are not required for contractor employees to travel within the United States.

9.2 Overseas Travel Requirements

9.2.1 Mode of Transportation

The contractor agrees, in the performance of necessary travel, to use the lowest-cost mode of transportation commensurate with the requirements of the mission and in accordance with good traffic-management principles. When it is necessary to use air travel, the contractor agrees to use air coach, tourist class, economy class, or similar accommodations. If the contractor cannot comply and must use first class travel, he shall obtain written approval for the government for each case.

9.2.2 Domestic Passenger Travel

The contractor shall be responsible for obtaining and funding for all domestic transportation required in the performance of this effort.

9.2.3 Passenger Travel Overseas

When it is necessary to travel to or from overseas areas, transportation shall be furnished by the government via the same mode and routing and under the same policies applicable to the DoD traffic. When cost of transportation is to be paid directly by the government to a commercial carrier, such payment shall be made by use of a government transportation request (GTR).

9.2.4 Financial Responsibilities

The contractor shall be responsible for funding all costs associated with travel and transportation of contractor employees with the exception of air transportation to and from overseas. These costs include such items as the following:

(1) Domestic (CONUS) airline tickets

(2) Land transportation costs (i.e., car rental, buses, trains, taxis, limousines, ferries, steamers, etc.)

(3) Overseas airline tickets

(4) Per diem expenses (i.e., hotels, meals, tips, etc.)

9.2.5 Government Approvals

All contractor personnel travel between CONUS and overseas destinations, and outside CONUS, shall be approved by the contracting officer or his designated representative, or both. To permit the processing and approval of travel orders and transportation requests for travel outside the CONUS in a timely manner, the contractor

shall furnish the contracting officer or his designated representative, or both, with the following information 50 days in advance of the planned date of departure, with 7 days' advance notification for emergency clearance requirements:

(1) Full name of traveler(s)

(2) Grade or rating

(3) Date of birth

(4) Passport number

(5) Security clearance (to include date and place of issuance)

(6) Date of departure and duration of trip

(7) Type of travel accommodations

(8) Itinerary

(9) Detailed justification for variations in itinerary (if applicable)

9.2.6 Theatre Clearance Lead Times

All travelers to overseas areas under this contract shall require government travel orders and theatre clearance granted by the overseas commander. To permit the PO to obtain the required theatre clearance, the contractor shall submit the data contained in paragraph 9.2.5 for each traveler to the PO contracting officer or his designated representative, or both, 50 days in advance of the designated date of departure, with 7 days' advance notification for emergency clearance requirements.

Upon receipt of these data, the PO/PCO shall be responsible for obtaining the required theatre clearance from the overseas command.

9.2.7 Travel Orders

Upon notification by the PO of theatre-clearance approval, the contractor shall apply to the Administrative Contracting Officer (ACO) for the issuance of travel orders and Military Airlift Command reservations or GTR. Such application shall be made in accordance with the policies and procedures established by the ACO.

10. RELIABILITY AND MAINTAINABILITY (R&M) INTERFACES

AFR 800-8, ILS element 1, states: "Although maintainability and reliability are engineering design parameters, they strongly influence and, in turn, are influenced by the ILS elements that directly contribute to the design of the system or equipment." Even though R and M are engineering parameters and, therefore, the R and M portion of the SOW is the responsibility of engineering, it is still necessary to examine the R and M portion of the SOW to ensure that those areas which influence ILS are properly addressed. This is the purpose of the following subparagraphs.

10.1 Dissemination of Current R Estimates and Allocations

Ensure that the R program plan addresses the methodology for dissemination of R estimates and allocation to the government ILS activity for review and comment.

10.2 Definition of R Terms

Ensure that the R program plan addresses the need for definition of R terms, particularly any unique terms or those terms which might be in conflict with definitions contained in MIL-STD-721, MIL-STD-781B, or MIL-STD-280. The terms utilized in the LSA and LSC analyses should be compatible with the "agreed to" R terms for the program. Particular attention should be given to the definition of failure or failures as they may apply to the various analyses requested by the contract.

10.3 Program and Design Reviews

Ensure that the contract specifies government ILS participation in program and design reviews.

10.4 R Demonstration Plan

Ensure that the contract specifies government ILS participation in R demonstration.

10.5 R Trade-Off Analyses Affecting Support Analyses

Ensure that the contract requires the contractor to evaluate the effects of reliability decisions and trade-offs against logistics support cost. Each decision should be evaluated for logistics impact before final approval, using the LSA and LSC models. Results should be documented in the LSAR and LSAR summary.

10.6 Impact of Failure Mode and Effects Analysis (FMEA) on Support Considerations

In order to establish effectively the parameters needed for input to the LSA and LSC, the SOW should contain provisions requiring the contractor to exercise a failure mode and effects analysis for all major systems, subsystems, and critical items. The provisions should define the method, format, and frequency of reporting the FMEA results.

10.7 Defective or Inadequate Parts/Specifications

Ensure that the contract requires the contractor to prepare and distribute defective or inadequate parts/specification reports. Ensure that the contract specifies that the procuring activity be notified of reporting deficiencies within 10 days after the deficiency is reported.

10.8 Preferred Parts Selection List

Ensure that the contract specifies that the contractor's preferred parts list be reviewed by the government ILS activity before it is approved for design use. Ensure that the contract instructs the contractor to utilize as many standard parts and techniques as possible consistent with the program's R and M goals.

10.9 Failure-Data Collection and Analysis and Corrective Actions

Ensure that the contractor's method for reporting his R failure-data collection and analysis and corrective actions includes distribution to the government ILS activity for review. The data collected should be compatible with the data associated with AFM 66-1 "Maintenance Management" system.

10.10 Procedures for Dissemination of Current M Estimates and Allocations

Ensure that the M program plan addresses the methodology for dissemination of M estimates and allocation to the government ILS activity for review and comment.

10.11 Definition of M Terms

Ensure that the M program plan addresses the need for definition of M terms, particularly any unique terms that might be in conflict with MIL-HDBK-472 or AFSCM/AFLCM 800-4. The terms utilized in the LSA and LSC analyses should be compatible with the "agreed to" M terms for the program.

10.12 Program and Design Reviews

Ensure that the contract specifies government ILS participation in program and design reviews. The M portion of the contract should require the contractor to review the proposed design periodically to assure fulfillment of M requirements. The period or timing of the reviews should be specified so that logistics support trade-offs can be made in a timely manner as the design matures.

10.13 M Demonstration Plan

Ensure that the contract specifies government ILS participation in M demonstration.

10.13.1 M Demonstration Techniques and Procedures

Maintainability statements must address actual demonstration of repair time and level, using development (or initial production) item hardware, or mock-ups where hardware is not available. Demonstrations shall be prepared in accordance with MIL-STD-471 (or equivalent guidance) and shall be performed early enough in the development phase to verify the maintenance concept and subsequently, as the system develops, to verify the cost impact of design changes and performance/support trade-offs.

10.14 M Trade-Off Analyses Affecting Support Analyses

The results of maintainability trade-off analyses should be evaluated by inputting changes into the logistic support cost (LSC) model, and cost-impact results should be reported to the procuring activity. Revised support parameters (repair time, parts cost, etc.) resulting from changes should be documented in the LSAR (or ILDF) and LSAR Summary to ensure visibility.

10.15 M Data Collection and Analysis, and Corrective Action

Ensure that the contractor's method for reporting his M failure-data collection and analysis and corrective actions includes distribution to the government ILS activity for review. The data collected should be compatible with the data associated with the AFM 66-1 "Maintenance Management" system.

10.16 Corrective and Preventive Maintenance

Ensure that the contract specifies that the contractor is to give special consideration to corrective and preventive maintenance characteristics at the system, subsystem, and module levels.

APPENDIX A

REFERENCES

1. AFLCR/AFSCR 800-24, *Standard Integrated Support Management System (SISMS).*

2. DoD D 4100.35, *Development of Integrated Logistics Support for Systems/Equipment.*

3. DoD I 4100.35G, *Integrated Logistics Support Planning Guide for DoD Systems/Equipment.*

4. AFP 800-7, *Integrated Logistic Support Implementation Guide for DoD Systems and Equipment.*

5. AFR 800-8, *Integrated Logistics Support Program for Systems and Equipment.*

6. AFSCP 800-21, *A Guide for Program Managers: Implementing Integrated Logistics Support.*

7. AFSCP 800-6, *Statement of Work Preparation Guide.*

8. ESDP 800-4, *Statement of Work Preparation Guide.*

9. Brochure: *ESD Acquisition Management Lessons Learned.*

10. Paper, *An Overview of RIW Procurement,* presented at the Joint Logistics Commanders (JLC) System Reliability Workshop 6 May 1975 by H.S. Balaban, ARINC Research Corporation.

11. Preliminary Report on Warranty Data Needs, Selection, and Evaluation Criteria, prepared for Rome Air Development Center under Contract F30602-74-C-0271, ARINC Research Corporation.

12. *Guidelines for Application of Warranties to Air Force Electronic Systems,* prepared for Rome Air Development Center under Contract F30602-74-C-0271 by ARINC Research Corporation, October 1975, Publication 1500-01-1-1451.

13. *The Use of Warranties for Defense Avionics Procurement*, prepared for Rome Air Development Center under Contract F30602-73-C-0207 by ARINC Research Corporation, June 1973, Publication 0637-02-1-1243.

14. TD-3, *DoD Authorized Data List, Index of Data Item Descriptions* (latest version).

15. SAMSO Exhibit 73-3, *Computer Software Design and Development, Standard Engineering Practice for*, 6 October 1973.

16. AFLCM 800-1, *Program Management*.

17. AFLCR/AFSCR 400-10, *Integrated Logistics Support of System Programs*.

18. AFLCR 80-4, *Test and Evaluation*.

APPENDIX B

ACRONYMS AND ABBREVIATIONS

ACO	Administrative Contracting Officer
ADP	Automatic Data Processing
AFAD	Air Force Acquisition Document
ASI	Amended Shipping Instructions
ATC	Air Training Command
ATG	Automatic Test Generator
CDR	Critical Design Review
CDRL	Contract Data Requirements List
CETS	Contractor Engineering Technical Services
CFE	Contractor-Furnished Equipment
CFR	Code of Federal Regulations
CI	Contract Item or Configuration Item
COD	Correction of Deficiencies
CPIN	Computer Program Identification Number
CRIS	Computer Resources in Systems Requirements
CRISP	Computer Resources Integrated Support Plan
C/SCSC	Cost/Schedule Control Systems Criteria
CSEL	Consolidated Support Equipment List
CSR	Contract Summary Reports
DCAS	Defense Contract Administration Services
DI	Data Item
DID	Data Item Description
DSARC	Defense System Acquisition Review Council
DTC	Design To Cost

ECP	Engineering Change Proposal
EMC	Electromagnetic Compatibility
FMEA	Failure Mode and Effects Analysis
FSD	Full-Scale Development
GBL	Government Bill of Lading
GFAE	Government-Furnished Aerospace Equipment
GFE	Government-Furnished Equipment
GFM	Government-Furnished Material
GFP	Government-Furnished Property
GTR	Government Transportation Request
ICD	Interface Control Drawings
ICS	Interim Contractor Support
ILDF	Integrated Logistics Data File
ILS	Integrated Logistics Support
ILSO	Integrated Logistics Support Office
IM	Item Manager
IOC	Initial Operating Capability
ISP	Integrated Support Plan
LCC	Life-Cycle Cost
LRU	Line Replaceable Unit
LSA	Logistics Support Analysis
LSAR	Logistics Support Analysis Record
LSC	Logistics Support Cost
M	Maintainability
MEA	Maintenance Engineering Analysis
MLSC	Measured Logistics Support Cost
NDI	Nondestructive Inspection
NSN	National Stock Number
OOALC	Ogden ALC
OPR	Office of Primary Responsibility
OR	Operational Readiness
ORLA	Optimum Repair Level Analysis
PCA	Physical Configuration Audit
PCO	Procuring Contracting Officer

PDR	Preliminary Design Review
PHSTT	Packaging, Handling, Storage, Transportability, Transportation
PIO	Provisional Item Order
PO	Program Office
PMD	Program Management Directive
PMRT	Program Management Responsibility Transfer
PPS	Provisioning Performance Schedule
PRS	Provisioning Requirements Statement
PSPL	Priced Spare Parts List
PTD	Provisioning Technical Documentation
R	Reliability
RDD	Required Delivery Date
RILSA	Resident Integrated Logistics Support Activity
RIW	Reliability Improvement Warranty
ROC	Required Operational Capability
RPIE	Real Property Installed Equipment
RPT	Resident Provisioning Team
SAALC	San Antonio ALC
SAIP	Spares Acquisition Improvement Program
SDPE	Special Design Protective Equipment
SE	Support Equipment
SERD	Support Equipment Recommendations Data
SI	Support Item
SM	System Manager
SOW	Statement of Work
SPO	System Program Office
SPTD	Supplementary Provisioning Technical Documentation
SRU	Shop Replaceable Unit
TAT	Turnaround Time
TCTO	Time Compliance Technical Order
TLSC	Target Logistic Support Cost
TRC	Technology Repair Center
WBS	Work Breakdown Structure
WRALC	Warner Robins ALC

APPENDIX C

ITEM ACQUISITION PRECAUTIONS

The following questions/reminders* have been developed for guidance in addressing logistics support and logistics support interface requirements that should be considered prior to preparation of an RFP/RFQ. The questions address both SOW and CDRL requirements. In a sense, these questions are similar to those asked in a "murderboard" session. If any of the questions cannot be answered satisfactorily, particularly with regard to how they might affect the program schedule and milestones, inclusion of the item(s) in the contract should be questioned.

I. a. Why is the item required?

b. Does it fulfill the requirement?

c. How do you know?

II. a. Does the Air Force already have a like item in the inventory?

b. If not, why haven't you used a standard Air Force item?

c. What have you done to make sure that there is not an item in the Air Force inventory that you could design to?

d. Whom did you check with in the Air Force?

e. What documentation do you have? Is it available for Air Force review?

III. a. What testing has been accomplished?

b. What additional testing is planned?

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*These questions were developed by Col. B.F. Dula, former DPML for the A-10 Weapon System Program.

c. When will it be completed?

d. How do you know when testing has been satisfactorily accomplished?

e. How have you documented all test results?

f. Is the documentation available to the Air Force?

g. Have deficiency corrections been covered?

IV. a. What type of failures have you had?

b. What is the frequency of failure? (MTBF?)

c. What is the required MTBF?

d. Under what conditions did these failures occur?

e. Have any design changes been recommended as a result of failures?

f. Have failures and fixes been documented?

g. Is the documentation available to the Air Force?

V. a. Is the item repairable?

b. Who should make the repair?

c. What is required to do the repair?

(1) Tools?

(2) SE?

(3) Repair parts?

(4) Facilities?

(5) Data/procedures?

d. How long does it take to repair? (MTTR)

e. What is required turnaround time?

f. At what level should repair take place? (i.e., organizational, intermediate, or depot?)

g. Have repair techniques been verified and documented?

h. Is the documentation available to the Air Force?

VI. a. Are there any special transportation, packaging, or storage requirements?

b. If so, what are they, and is documentation available to the Air Force?

VII. a. What are the inspection requirements?

b. Why are they required?

c. When and how often do these inspections occur?

d. Who accomplishes the inspections?

e. What equipment is required to perform inspections?

f. How have you incorporated NDI techniques into your design?

g. Is there any BIT (Built-In Test) capability or ATE (Automatic Test Equipment), and is the ATE standard? If not, why not?

h. Have you verified and documented your inspection requirements?

i. Is the documentation available to the Air Force?

VIII. a. If the item is installed on the aircraft, where is it located?

b. How is it removed and replaced, and how long does it take?

c. Does any other item have to be removed when subject item is removed?

d. With what does it interface? Has EMC been covered?

e. What is the QPA (Quantity per Application) required for the system?

f. What documentation do you have, and is it available to the Air Force?

IX. a. What are the training requirements?

(1) For pre-op support?

(2) For maintenance, at all levels (organizational, intermediate, depot)?

(3) For operation?

b. Do you have a training plan and schedule?

c. If not, when do you expect to have one available for Air Force review?

d. What coordination have you made with ATC, using command, AFLC, SPO?

X. a. What technical data are available to support the item?

(1) Are TOs available for maintenance at all levels?

(2) If they are not available, when will they be available?

(3) Does availability date support the test and operational program schedules?

(4) Are there data for reprocurement (AFR 310-3)?

(5) When will TOs and support engineering drawings be validated and verified?

(6) Do you have a plan and schedule for accomplishment of the task, and is it available for review?

XI. a. Have you considered the spares requirements?

b. What is your suggested schedule for various provisioning actions?

c. Who is the manufacturer?

d. Are there any other sources?

e. Can the vendors support both production and spares requirements?

f. Will vendors be able to support follow-on spares requirements?

g. Do vendors have a repair capability?

h. Ref. e, f, g (above); how do you know?

i. How have you documented these considerations, and is the documentation available to the Air Force?

XII. a. What is the parts count in the item?

b. Can you break parts out by electrical and nonelectrical categories?

c. Have you screened DoD inventory for parts standardization and substitutability?

d. Have you <u>designed</u> to use standard parts? If not, why not?

e. For a through d, what documentation do you have, and is it available to the Air Force?

XIII. a. What are associated costs?

(1) Unit price

(2) Support equipment costs

(3) Spares cost (program life in then-year dollars)

(4) Special tool costs

(5) Data costs (TOs, drawings, reprocurement data)

(a) Break out data cost by FYs if you are able

(6) What specific documentation do you have to justify cost data?

(7) Can you provide it to the Air Force?

XIV. a. If the Air Force will/should not have complete organic support capability by start of the operational phase, please identify areas in your proposal for interim contractor support.

APPENDIX D

COMPARISON OF LOGISTIC SUPPORT COST CONTROL METHODS

Factors	RIW	RIW/MTBF*	LSCC
1. AF Logistic Costs Control Risk	Moderate	Low	High
2. Contractor Pricing Risk	Moderate	High	Moderate
3. Administration Difficulty	Moderate	High	Low to moderate
4. Enforceability Risk	Moderate	Moderate	Moderate to high
5. Reliability-Growth Motivation	Moderate	High	Moderate
6. Commitment Time	Start of production	Start of production	After follow-on OP test
7. Services Provided	Depot and partial field maintenance plus no-cost ECPs	Depot and partial field maintenance, logistics assets if required, plus no-cost ECPs	Possible logistics assets if required, or equipment ECPs

*Reliability Improvement Warranty together with MTBF guarantee. This differs somewhat in concept from the RIW logistics support cost control method. Under the RIW concept, the contractor is given incentive to achieve and maintain the MTBF upon which his warranty price is based. Under the RIW/MTBF concept, the contractor and government agree on a guaranteed level of operational MTBF based on a growth curve and on a method for measuring it. If the MTBF for a given measurement period is less than the guaranteed value for that period, the contractor is required to provide loaner or consignment spares in accordance with some agreed-upon formula. This formula generally is based on a spares equation such that the user is assured that these loaner spares will provide the same readiness posture as if the achieved MTBF were equal to the guaranteed value. In addition, the contractor is required to initiate actions necessary to bring the MTBF up to the desired level. Loaner spares are returned as the contractor achieves specified MTBF through no-cost ECPs.

APPENDIX E

RELIABILITY IMPROVEMENT WARRANTY

1. THE WARRANTY CONCEPT

An RIW commits the contractor to perform depot-type repair services for a fixed duration of operating time, calendar time, or both, at a fixed price. The typical process for implementing a warranty repair is as follows:

- Suspected failure of warranted unit is tested by military personnel at the using activity to verify failure.
- If unit tests "good", it is put back into service or sent to supply as a ready-for-issue spare.
- If unit tests "bad", it is shipped with appropriate data to the contractor for repair.
- Contractor receives unit and verifies failure and warranty coverage.
- If failure is not verified or is not covered by the warranty, corroboration by DCAS representative is secured.
- Repair of covered failure is performed at no additional cost to the government, and required data records are generated.
- Repaired unit is shipped back to the using activity, placed in a bonded storeroom maintained by the contractor, or sent to a centralized military supply depot.

While the major expenditures of a warranty procurement are for the repair services involved, the prime thrust of the approach is to achieve acceptable reliability. The question of whether the contractor can provide depot repair services at a cost lower than that of military repair is secondary to the objective of reliability achievement. If a contractor is committed to perform repair services on his delivered equipment for an extended period of time at a fixed total price, he has strong incentive to achieve or exceed the reliability level upon which the warranty price was determined. If, during the initial period of the warranty, an unexpected reliability problem is

discovered, there is strong incentive for the contractor to introduce a no-cost ECP to correct such a problem in order to reduce the number of future repair actions over the remaining warranty period. Such problems are corrected much more efficiently and rapidly than under an organic maintenance concept because of the contractor's involvement with field failure experiences.

2. RIW APPLICABILITY

The decision to include an RIW clause in a procurement contract should not be made lightly, for a proper approach involves a great deal of effort in formulating effective procurement, administrative, and logistic provisions. In addition, contractor effort in responding to a warranty provision can be a costly exercise, and such a burden should not be imposed unless the government believes that warranty potential can be realized.

To assist in identifying those procurements for which there is a good likelihood that an RIW will be successful, a set of warranty selection criteria has been established and grouped into three areas: procurement factors, equipment characteristics, and application factors. Each area is considered equally important with respect to determining warranty applicability.

Table E-1 lists the selection-criteria factors in each area in approximate order of decreasing importance. It is unlikely that all criteria will be met totally for any contemplated warranty procurement. Three classes of importance have been established:

1. Major - failure to meet the stated criterion could be grounds for not using warranty.
2. Secondary - failure to meet the stated criterion will generally not be a sufficient basis for rejecting warranty, but a combination of such events could be.
3. Minor - failure to meet the stated criterion is generally not considered serious but may require special considerations in structuring the warranty contract or administrative procedures.

The factors listed in the table are generally qualitative and are intended to indicate the general feasibility of a warranty procurement. A complete analysis of warranty potential, especially from an economic viewpoint, cannot be made until warranty price and implementation proposals are received from bidding contractors. The criteria listed in Table E-1 should be viewed as an initial screening device to select those procurements for which the effort in developing an RIW approach is worthwhile.

Table E-1. **WARRANTY SELECTION CRITERIA**

Factor	Criticality
Procurement	
The procurement is to be on a fixed-price basis.	Major
Multi-year funding for warranty services is available.	Major
The procurement is competitive.	Secondary
Potential contractors have proven capability, experience, and cooperative attitude in providing warranty-type services.	Secondary
The procurement quantity is large enough to make warranty economically attractive.	Secondary
Analysis of warranty price versus organic repair costs is possible.	Secondary
An escalation clause in included in the contract that is applicable to warranty costs.	Minor
The contract can be structured to provide for incremental payments for warranty services.	Minor
Equipment	
Equipment design is proven, and reliability-growth potential exists.	Major
Control of unauthorized maintenance can be exercised.	Major
Moderate to high initial support costs are involved.	Major
Unit is field-testable.	Major
Unit can be properly marked or labeled to signify existence of warranty coverage.	Major
Unit is amenable to R&M improvement and changes.	Secondary
Unit is reasonably self-contained.	Secondary
Unit can be readily transported to the contractor's facilities.	Secondary
Equipment is generally immune from failures induced by outside units and has readily identifiable failure characteristics.	Secondary

(continued)

Table E-1. (continued)

Factor	Criticality
Equipment (continued)	
Unit has a high level of ruggedization.	Secondary
Unit maintenance is highly complex.	Minor
An elapsed-time indicator can be installed on the equipment.	Minor
Application	
Use environment and operating-time exposure are known or predictable.	Major
Equipment operational reliability and maintainability are predictable.	Major
Equipment wartime or mission peacetime criticality is not of the highest level.	Major
Equipment has a high operational utilization rate.	Secondary
Warranty administration can be efficiently accomplished.	Secondary
Warranty may not be appropriate when the duplication of an existing or planned government rapair facility would not be cost-effective.	Secondary
Unit reliability and usage levels are amenable to warranty maintenance.	Secondary
Operational failure and usage information can be supplied to the contractor.	Minor
Back-up warranty repair facilities are available.	Minor

APPENDIX F

EXCERPTS FROM F-16 ACQUISITION
CONTRACT F33657-75-C-0319, SECTION J,
AWARD FEE

43. AWARD FEE

(a) In addition to the profit specified elsewhere in this contract, an award fee will be payable by the Government. The maximum amount payable under this provision is $11.6M. An initial award fee will be based primarily on the Air Vehicle design cost reduction and opportunities guidance developed by the LCC/DTC design trade studies conducted prior to CDR. A second award fee will be based primarily on the Supportability including AGE, training and maintenance, design, cost reduction opportunities guidance developed by the LCC/DTC design trade studies prior to flight of the first DT&E aircraft. A third award fee will be based upon the demonstrated supportability of a selected group of components.

(b) $800,000 awarded at the completion of the Critical Design Review based on the criteria set forth in (d) below. $2,400,000 awarded subsequent to the first flight of the DT&E aircraft based on trade studies performed up to the first flight in accordance with the criteria set forth in (d) below. $8,400,000 awarded subsequent to an operational test program based on the criteria set forth in (e) below.

(c) The Contractor's performance in accomplishing LCC/DTC objectives shall be continuously monitored by the Fee Evaluation Board chaired by the Assistant Secretary of the Air Force for Installation and Logistics or his designee and such other members as he may designate.

(d) The evaluation of the Contractor's performance will be based upon the completion of the trades studies set forth in Contractor's document F-16-020, Appendix C and Government validation of the results considering LCC/DTC opportunities and the Contractor's consideration of the results in the design of the Air Vehicle and support equipment.

(e) The $8,400,000 award fee referenced in paragraph (b) above, is further divided into two separate award fees of $2,00,000 and $6,400,000:. The award criteria for each of these fees are set forth below.

(1) The $2,000,000 award fee is based on the logistic support costs associated with the control FLUs selected in accordance with Section J. provision 64. The Target Logistics Support Cost (TLSC-COD) is 38,424,935 FY 75 dollars (with Hughes radar) or 67,860,765 FY dollars (with Westinghouse radar). The total measured logistic support cost (MLSC-COD) for the aggregate of such FLUs will be computed as described in Attachment 11 hereto, using data obtained from the verification test described in (4) below. If this total MLSC-COD does not exceed the total TLSC-COD guaranteed under provision 64., the contractor shall become eligible to receive an award fee, the amount to be determined by the Government, but not to exceed $2,000,000.

In the event that [illegible] control FLUs listed in provision 64. are selected for RIW coverage under provision 63., the maximum award fee will be reduced by an amount equal to the corresponding percentage reduction of the initial total TLSC-COD as provided in provision 64.

(2) The $6,400,000 award fee is based on the total logistic support costs associated with the non-control FLUs (excluding propulsion system FLUs and control FLUs covered under either the RIW or COD provisions of Section J., provisions 63 and 64 respectively), as well as certain system level support costs specified in Attachment 11. These total measured logistic support costs (MLSC-SYSTEM) will be computed as described in Attachment 11, using data obtained from the verification test described in (4) below. If this computed MLSC-SYSTEM does not exceed the target logistic support cost (TLSC-SYSTEM) of 334,624,024 FY75 dollars, (with Hughes radar) or 334,849,299 FY75 dollars (with Westinghouse radar), the Contractor shall become eligible to receive an award fee, the amount to be determined by the Government but not to exceed $6,400,000.

(3) The TLSC-SYSTEM and TLSC-COD established at source selection will not be subject to adjustment during full scale development or early production (prior to test measurement) with the following exceptions:

(i) Approved ECPs in conjunction with individual renogotiated values resulting from the engineering change.

(ii) Changes in the anticipated force structure or activity levels to be supported.

(iii) Inflation factor adjustments as outlined in the basic contract will be made to acquisition cost elements.

(iv) Changes to factors defining the maintenance concept resulting from a Government approved repair-level analysis conducted during full scale development.

(v) Adjustments to radar FLUs as indicated by paragraph 4 of attachment 11.

(vi) Adjustments due to subsequent identification of certain control FLUs designated as Government Furnished Aeronautical Equipment (GFAE) for production aircraft. (See paragraph 5 of Attachment 11)

The values for MTBF will not be renegotiated, with the exception of radar as noted in paragraph 4 of Attachment 11. Further, any changes to organizational, intermediate, or depot level manhour values shall retain the same gross weighted manhour cost value (manhour expended times labor rate).

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(4) A verification test will be conducted to collect data for the purpose of measuring the contractor's eligibility to receive the award fees described in paragraphs (1) and (2) above. The verification test will be conducted by the Air Force using the first operational squadron and will commence six (6) months after full activation of that squadron. The test will continue until a total of 3,500 flying hours have been accumulated. The Government will prepare a detailed test plan to assure that all data necessary to compute the appropriate logistic support costs will be collected. The Government will be responsible for all organizational, intermediate, and depot level maintenance and supply support for the verification test.

(f) Payment of any award fee awarded to the Contractor thereunder shall not be subject to the provisions of the clauses entitled "Limitation of Government Obligation," "Termination for the Convenience of the Government," and "Incentive Price Revision (Firm Target)."

(g) Any decision of the Fee Evaluation Board with respect to awards to the Contractor hereunder shall not be subject to the "Disputes" clause.

(h) The contractor may submit vouchers immediately for the award fee to which he is entitled upon notification thereof by the Procuring Contracting Officer.

(i) Prior to the start of a new evaluation period, the Government may modify the award fee or criteria to be evaluated or both for future evaluation. The Contractor will be notified of such changes by the Procuring Contracting Officer prior to the start of a new evaluation period.

APPENDIX G

EXCERPTS FROM F-16 ACQUISITION
CONTRACT F33657-75-C-0310, SECTION J,
DESIGN TO COST

11. DESIGN TO COST

(a) Definitions: Unit production flyaway costs are defined as the sum of all recurring and non-recurring costs (excluding all RDT&E Costs) necessary to produce a complete aircraft, including the applicable portion of system engineering and program management. This definition excludes all costs associated with the production of AGE, training, data, initial spares and the applicable portion of system engineering and program management. Recurring costs are defined as costs of airframe, propulsion, electronics, armament, other CFAE/CFE and Engineering Change Orders (ECO) of a recurring nature needed to meet system specification requirements in accordance with this definition. Non-recurring costs are defined as cost for rate tooling produced to attain a specific rate of production and the production engineering associated therewith, the applicable portion of system engineering and program management, and any ECO costs that are appropriately classified as non-recurring in accordance with this definition.

(b) A prime objective during Full Scale Development is to design to a cumulative average unit production flyaway cost of $3,842,525 expressed in FY 1975 dollars for a total of 1000 aircraft, to attain a maximum production rate of 15 aircraft per month. The Contractor shall control and track his portion of the design to unit production flyaway cost of $2,323,074* throughout the development cycle compatible with the work breakdown structure** The Cost/Schedule Control System shall be used to identify the area of change from the original development plan and serve as a tracking vehicle to ascertain effects of a development change and any other change to the unit production flyaway cost. The Contractor's proposed budgetary estimates for his portion of the unit production flyaway costs shall serve as the cost baseline against which deviations shall be reported. Any changes over $3,000 to the Contractor's original concepts, design and/or assumptions which will change the Contractor's portion of the unit production fly-away cost shall be reported in Part 5, Problem Analysis, of the Monthly Cost Performance Report (CPR) showing the effect on FY 75 dollars and then year dollars. Part 5 of the CPR shall include analysis of the impact of changes (configuration changes, schedule changes, etc) on the Contractor's portion of the unit production fly-away cost for each affected WBS element. The Contractor will also report actions (including any trade-offs) he proposes to take to bring the cost within the limit of the established production cost goal.

(c) Although achieving the design-to-cost goal specified in paragraph b, above, is a principal objective of this contract, the Contractor is also expected to include as a management objective during full scale development the control of future downstream operating and support costs as well. The Government will entertain Contractor requests for adjusting the design-to-cost goal at any time during the period of this contract for real or demonstratable costs of ownership savings which would result in an overall life cycle cost benefit to the Government. The Contractor's proposal for adjusting the average unit production flyaway cost goal must be supported by sufficient justification and data which would substantiate a high degree of confidence that the life cycle cost savings will be realized.

*Excludes engine, radar and GFAE.

**Both flyaway cost values based on procurement of 15% two place aircraft.

APPENDIX H

EXCERPTS FROM F-16 ACQUISITION
CONTRACT F33657-75-C-0310, SECTION J,
LOGISTIC SUPPORTABILITY COST COMMITMENT

64. LOGISTIC SUPPORTABILITY COST COMMITMENT

a. Notwithstanding Government inspection and acceptance of supplies and services furnished under this contract or any provision of the contract concerning the conclusiveness thereof, the contractor guarantees that the total Measured Logistic Support Cost (MLSC-COD) will not exceed the total Target Logistics Support Cost (TLSC-COD) for such FLUs when such measured values are obtained in accordance with the test program described below. TLSC-COD values, along with target prices contained in the basic contract price for correction of deficiencies, for control FLUs are stated as follows:

	WUC	NOUN	TLSC-COD (FY 75 DOLLARS)	FOOTNOTE	COD TARGET PRICE (Then Year Dollars)
1.	74DAO	Navigation Unit	5,566,617	1	963,059
2.	14ABO	Flight Control Computer	3,765,582	1	1,620,109
3.	74EAO	Radar/E-O Display	3,291,877		743,823
4.	74BAO	Heads Up Display	2,892,027	1	778,332
5.	74ECO	Digital Scan Converter	2,786,582		1,232,577
6.	74CAO	Fire Control Computer	1,808,496		991,226
7.	74BCO	HUD Electronics	1,265,905	1	138,507
8.	74EBO	Radar/E-O Electronics	1,248,004		133,436

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	WUC	NOUN	TLSC-COD (FY 75 Dollars)	FOOTNOTE	COD TARGET PRICE (Then Year Dollars)
		HUGHES RADAR COMPONENTS			
9.	74AAO	Radar Antenna	5,498,412	2	
10.	74ACO	Radar Transmitter	3,438,330	2	
11.	74ADO	Radar Signal Processor	2,892,759	2	
12.	74AEO	Radar Data Processor	2,519,153	2	
13.	74ABO	Radar Receiver/Exciter	1,451,191	2	
		WESTINGHOUSE RADAR COMPONENTS			
9.	74ACO	Radar Transmitter	22,660,132	2	
10.	74AEO	Radar Digital Processor	12,976,451	2	
11.	74ABO	Radar Low Power RF	6,764,405	2	
12.	74AAO	Radar Antenna/Servo	2,834,687	2	

1 Control FLUs indicated may subsequently be identified during full scale development as Government Furnished Aeronautical Equipment (GFAE) to be furnished for the production aircraft. Any FLU so identified will be deleted from coverage under this provision. The TLSC-COD contribution of any control FLU subsequently removed from this provision will be added to the TLSC-SYSTEM value and subject to the award fee criteria in provision 43. The contract price (including the ceiling amount added to the target price) will be reduced to reflect the removal of the item(s) from coverage under this provision.

2 See paragraph d, below.

b. The TLSC-COD values stated in Subparagraph a, above, are computed from the following formula:

$$\text{TLSC-COD} = \sum_{i=1}^{n} C_{1i} + C_{2i} + C_{3i} + C_{5i}$$

where

C_1 = initial and replacement spare costs (COD FLUs)

C_2 = on equipment maintenance costs (COD FLUs)

C_3 = off equipment maintenance costs (COD FLUs)

C_5 = support equipment costs (COD FLUs)

n = number of COD FLU types

Attachment 11 to this Contract provides complete derivation of the cost elements.

c. The COD prices in Subparagraph a, above, are target prices under the terms and conditions of the production contract.

d. The contractor agrees to accept COD Cost proposals for radar FLUs listed in Subparagraph a, above, from competing radar suppliers. The contractor further agrees that these proposals will be primary considerations in his source selection. The contractor agrees that the proposal of the selected radar supplier will be passed on to the Government as a commitment by the contractor, and that the contractor's target price to the Government will be the price negotiated with the radar supplier plus a contractor's markup not to exceed 29.3 percent. The contractor agrees to retain responsibility for configuration management and system performance for all equipment covered under these provisions.

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e. The Government may elect at its option to exercise the RIW provisions (Ref Provision 63, Section J) for one or more of the FLUs listed in Para a, above. In the event this action is taken, the total TLSC-COD for all FLUs listed in Para a, above, will be reduced by an amount equal to the associated logistic support cost of each FLU placed under the RIW provision. Additionally, the contract price (including the ceiling amount added to the target price) will be reduced to reflect the conversion of the control FLU to a RIW.

f. A verification test of 3500 flying hours will begin six months after the first ACF squadron becomes operational. The Government will prepare a detailed test plan and data collection procedures for the verification test to assure that all of the data elements necessary for quantification of total MLSC-COD are accurately recorded. The computation of MLSC-COD will be made using the same formula as presented in para b, above.

g. In the event the total MLSC-COD exceeds the total TLSC-COD, by more than 25 percent, the contractor must institute a correction of deficiencies (COD) course of action which will bring the logistics cost within the prescribed range. The contractor's proposed course of action must be submitted to the Government for review and approval prior to implementation.

h. Following the correction of deficiencies, the Government intends to verify, through such additional testing as it may deem necessary, that the total TLSC-COD has been achieved for the control FLUs selected for COD coverage.

i. The contractor commitment under the provision of this agreement will continue until satisfactory compliance with the prescribed range has been demonstrated.

j. Contractor Obligations

(1) The contractor shall supply representatives during the verification test to verify the authenticity of the observed data.

(2) In the event total MLSC-COD exceeds the prescribed range, the contractor shall investigate and formulate a corrective action plan which if implemented will bring logistic costs within the prescribed range. The plan shall contain sufficient data to justify the efficacy of proposed actions.

(3) The contractor shall submit his proposed corrective action plan to the Government for review and approval. The contractor shall, after notification of such approval, implement the plan as specified.

(4) The contractor shall incorporate all deficiency corrections in all government-owned assets, excluding FLUs delivered prior to the first production article, by either retrofit of delivered assets or production incorporation. The assets to which this requirement applies includes but is not limited to FLUs, AGE, software, training equipment, technical data, etc.

(5) If the government determines that retest is necessary (refer to paragraph h), the contractor shall provide representatives at the retest to verify authenticity of the retest data.

(6) Steps (2), (3), (4), and (5) will be repeated in the event that the retest data show that the total MLSC-COD fails to meet the prescribed level.

k. Government Obligations

(1) Adjustments to the TLSC-COD values will be made by the Government for the following reasons:

(a) Approved ECPs in conjunction with individual renegotiated values resulting from the engineering change.

(b) Changes in the anticipated force structure or activity levels to be supported.

(c) Inflation factor adjustments as outlined in the basic contract will be made to acquisition cost elements.

(d) Changes to factors defining the maintenance concept resulting from a government approved repair-level analysis conducted during full scale development.

(e) Adjustments to radar components as indicated by paragraph 4 of attachment 11.

(f) Adjustments due to subsequent identification of certain control FLUs designated as Government Furnished Aeronautical Equipment (GFAE) for production aircraft. (See paragraph 5, Attachment 11).

The values for MTBF will not be renegotiated, with the exception of radar FLUs noted in paragraph 4 of attachment 11, Further, any changes to organizational, intermediate, or depot level manhour values shall retain the same gross weighted manhour cost value (manhours expended times labor rate).

(2) The Government agrees to notify the contractor of its approval/disapproval decision within thirty (30) days of receipt of the contractor's proposed COD action plan.

(3) The Government will prepare a detailed test plan to be implemented during the 3500-hour verification test. The Government agrees to review the test plan with the contractor prior to plan implementation.

(4) The Government will perform the verification test using the first operational squadron.

(5) The Government will notify the contractor of its intent to commence the verification test at least 30 days prior to the commencement of such test.

(6) The Government will compute total MLSC-COD based on values measured during the verification test.

(7) The Government will notify the contractor of the existence of a deficiency should the total MLSC-COD fail to meet the prescribed range.

(8) The Government will determine the nature and extent of any retest it deems is required to validate the efficacy of deficiency corrections.

(9) In the event that the Government elects to require retest, the price for any portion of the retest which is directed by the Government to be performed in the contractor's facility will be separately negotiated with the contractor.

(10) The Government may elect to continue the retest until compliance with the prescribed range is achieved.

SECTION J

65. CONTRACTOR UNDERSTANDING OF LOGISTIC SUPPORT COST GUARANTEES AND CONTRACTUAL COMMITMENTS RELATED THERETO

The contractor recognizes that this contract contains Life Cycle Cost provisions under which he has guaranteed that certain equipment furnished can be logistically supported by the Air Force within a certain dollar amount. In agreeing to these provisions the contractor represents that the following matters were considered:

a. The contractor fully understands the scope of the Logistic Support Cost Commitment, both in terms of a Correction of Deficiency (COD) obligation and the obligation to accept a Reliability Improvement Warranty (RIW) Contract(s) at the prices set forth elsewhere in this contract.

b. The contractor has prepared the statement of work and/or specifications covering the items (FLUs) to be covered by the COD and RIW provisions. To the extent there are Government specifications reflected in the statement of work and/or specifications for these items, the contractor has adopted the Government specifications.

c. The contractor agrees that he will fulfill his logistic support cost commitment/guarantee within the terms of the existing contract and will not claim a change thereto because of any specification, state of the art or other technical problems, and economic problems that he may encounter. In other words the contractor assumes all risks associated with fulfilling the logistic support cost commitment/guarantee, except as specifically provided otherwise in the COD/RIW provision of the contract.

d. The contractor agrees that the formulas, definitions of terms, data collection, and verification test procedures set forth under the life cycle cost (logistic support cost commitment) provisions of the contract are adequate for purposes of measuring and assuring proper enforcement of the TLSC guarantees.

e. The contractor agrees that the various provisions covering liquidated damages are reasonable and reflect the best estimate of actual probable damages.

f. Where the COD/RIW provisions contemplate the contractor's agreement to such items as the final operational test plan and test procedures thereunder, the contractor agrees that he will not withhold his concurrence thereto

as a means to preclude later enforcement of the COD/RIW obligations assumed under the contract. In the event contractor does not furnish his concurrence to such items for the foregoing reasons the Government will have the right to require compliance with the plans, procedures, etc., developed without such direction being considered a change in contract requirements.

g. The contractor's obligation under the COD provisions is not limited by dollars included in his price for COD coverage.

h. The contractor recognizes that in submitting his proposal for the logistic support costs he has estimated the ratio between flying hours and operating hours. When the actual operational test is run, it is understood that measured logistics costs will be based on actual ratio between flying hours and operating hours, whatever it may turn to be, in accordance with formulas in contract. If the actual ratio differs from the estimate/projection made by the contractor in his proposal, this will not be grounds for making any adjustment in the TLSC.

i. The contractor recognizes that for purposes of determining MLSC (measured logistic support costs) computations will involve determining total operating time

based on an estimate secured from failed units. For purposes of these computations the Government will have no obligation to ascertain the actual recorded operating time on each individual FLU.

j. The contractor understands the purpose and intent of the various definitions of a deficiency and agrees that all such definitions are reasonable in scope of coverage.

k. The contractor recognizes that the logistic support cost provisions contain certain time periods governing the processing of ECPs (engineering change proposals) and the furnishing of consignment spares. To the extent that any of these time periods are different, the contractor agrees that there is a reasonable basis for the differences and no conflict exists.

APPENDIX I

EXCERPTS FROM A-10 WEAPONS SYSTEM SPARE/REPAIR
PARTS ACQUISITION CONTRACT F33657-75-C-0228,
SECTION J, SPARES ACQUISITION IMPROVEMENT PROGRAM

2. Pricing of SAIP Spare Parts

Spare parts proposals submitted by the Contractor for Items 0003 and 0007 of Section E hereof shall be on a firm price or a "not-to-exceed" price basis. The period for which these prices remain valid for acceptance by the Government shall be specified in the recommended list, but in any event shall not be less than sixty (60) days after submission to the Government. Contractor's proposals for firm prices shall contain cost and pricing data in accordance with ASPR 3-807.3.

3. Procedures for Pricing Unpriced Orders

(a) Within 90 calendar days from the date of an UNPRICED ORDER, the Contractor shall prepare and submit to the Government a firm price proposal, identified to the Order to which it pertains and setting forth proposed unit and total prices. Such proposal shall contain cost and pricing data in accordance with ASPR 3-807.3.

(b) Obligations of Contractor under UNPRICED ORDERS:

(1) Upon receipt of an UNPRICED ORDER, the Contractor shall proceed to comply therewith. However, the Contractor shall (i) promptly notify the ACO, of any reason why he cannot furnish the supplies or services desired, in accordance with the required delivery schedule, (ii) identify any obsolete item ordered and withhold production of same, (iii) recommend superseding or interchangeable parts, (iv) report any obvious errors in stock number or other discrepancies in the Order. Upon receipt of the foregoing information, the parties shall negotiate to modify the Order as deemed necessary.

(c) Each Unpriced Order shall contain a schedule for the definitization of the Unpriced Order which shall identify as a minimum, the dates for the following milestones:

Milestone Event	Date
Submission of Contractor's Proposal	
Negotiation	
Distribution of Priced Order	

4. Spares Acquisition Improvement Program

(a) Spare parts to be procured under Items 0003 and 0007 hereof shall be in accordance with the "Spares Acquisition Improvement Program (SAIP)" procedures set forth below. The objectives of SAIP are to reduce the acquisition price of spare parts and improve logistic support by (i) concurrent ordering of certain selected spare parts with the end item, (ii) stabilizing "on-order" quantities, and (iii) securing firm proposal and establishing firm or not-to-exceed prices for spare parts prior to contract authorization.

(b) Not less than 165 days prior to the scheduled date for exercise of a production option, or the long lead funding for a production option, or the date of issuance of a new A-10 follow-on contract, whichever is earlier, the Contractor shall submit to the Sacramento ALC spares SAIP data required by CDRL Items DI-UL-69-6A and DI-E-3147/M of Contract F33657-73-C-0500. Sacramento ALC within 45 days from receipt of the Contractor submissions shall inform the contractor of the Items, quantities and desired delivery dates for the selected SAIP. Within 90 days of the Sacramento ALC submittal the Contractor shall provide to the AFPRO/TMD and Sacramento ALC a fully supported firm proposal Priced Spare Parts List (PSPL) for selected SAIP items. The total firm proposal price shall constitute a not-to-exceed price. Sacramento ALC will submit PIOs via Integrated Logistics Data File (ILDF) based on the contractors established need date. Upon exercise of a production option, or the long lead funding for a production option, or the issuance of a new A-10 follow-on contract, but in no event no later than 30 days after contractor submittal of firm proposal (PSPL) to Sacramento ALC spares orders will be released to the contractor. The AFPRO/TMD and the contractor shall promptly negotiate the price of the selected items and establish a Negotiated Spare Parts List (NSPL) which shall be incorporated into the contract by written modification.

5. Relationship Between This Contract and Contract F33657-73-C-0500

(a) This contract is established to procure A-10 Weapon System/Spare Repair Parts for support of Contractor's deliveries and other performance under contract F33657-73-C-0500. Accordingly, this contract will be so construed as to effect such end and no provision hereof shall change or affect any of the rights or obligations of the parties under contract F33657-73-C-0500.

(b) It is recognized that Contractor's performance is dependent upon the continuance of contract F33657-73-C-0500 in accordance with the terms of such contract. Contractor shall, however, segragate all costs incurred in the performance or orders hereunder from those incurred under contract F33657-73-C-0500 in a manner consistent with the procedures defined in Contractor's Disclosure Statement. Nothing hereunder shall change or affect any of the rights or obligations of the parties under the Charging and Allocation of Costs provision of contract F33657-73-C-0500.

(c) Update and Modification Change Kits required in support of items procured under the terms of this contract shall be procured and managed in accordance with Attachment No. 1 of contract F33657-73-C-0500. Changes associated with Update/Modification Kits will be against items 0016 and 0025 of Contract F33657-73-C-0500 as applicable.

(d) The Contractor shall accomplish configuration management in accordance with MIL-STD-480, dated 30 October 1968 utilized in the performance of Contract No. F33657-73-C-0500. All non-recurring charges associated with configuration changes, affecting the same production and spare parts shall be properly chargeable to Contract No. F33657-73-C-0500. The spare parts furnished under this contract, (except as directed by Sacramento ALC) shall be of the identical configuration as the corresponding parts utilized in the A-10 Weapon System as established by the Physical Configuration Audits of the Configuration Items in which they are to be used.